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THE VETERINARY JOURNAL

A MONTHLY REVIEW OF VETERINARY SCIENCE

Est. 1875

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The Veterinary Journal.

MARCH, 1937.

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MARCH, 1937

Editorial

THE VETERINARY PROFESSION FROM THE STUDENT ASPECT.

IT is naturally of the greatest importance both to the prospective student and to his guardian that each should learn something of the course which is necessary to be undertaken in order to obtain the Diploma of the Royal College of Veterinary Surgeons, which is the only hall-mark which gives permission for a qualified man to sign himself as a "Veterinary Surgeon." It is with the object of being a help to the beginner, as well as to the older people who hold the purse-strings, and have in hand the guidance of the youth of to-day who will be the man of to-morrow, that we are publishing this Educational Number.

It is only lately that the general public have assimilated the idea that the work of the veterinary surgeon can be of *National* importance and that he is the proper (and indeed the only) person capable to deal effectively with the diseases of animals other than the horse; and it has been quite the usual thing during the last twenty years for a boy who told his father that he wished to be a veterinary surgeon to receive the discouraging reply: "My boy, it is a finished profession, for there are no horses," not realising that men with veterinary training were necessary on the side of Public Health; and also that the household pets of the people not only run into many millions, but are precious in the estimation of their owners to an extent in which money often plays no part. There is no country in the

world in which the phrase "the dog is the friend of man" applies as it does in Great Britain, and, indeed, on more than one occasion the dog in the house has been stated to be worth more than the husband! The pecuniary value of poultry alone is more than that of wheat; and poultry diseases also come within the domain of the veterinary surgeon. The inspection of milk and meat can only be done properly by a man who is trained in their diseases, and there is no man who receives a more thorough training in these two respects than the veterinary surgeon. In addition to all this, the practice of his science is not confined to England, for our Colonies create a demand which is at present by no means exceeded by the supply, and in the countries across the sea the prophylaxis of animal diseases is of even greater importance than in this country. The saying that "agriculture is the backbone of the country, and the wealth of agriculture depends on its animals; the value of the animals depends on their health, and the health of the animal depends on the man who is scientifically trained in their diseases, that is the duly qualified veterinary surgeon," is, indeed, true; for no country can remain prosperous without agriculture, and the prosperity of agriculture rests mainly upon its animals.

It is true that we have not many men of wealth in the veterinary profession; but the life is a very healthy one, and when taken on the aggregate and compared with other professions that of the veterinary surgeon gives an income to the man who knows his job and settles down in the right place which is by no means to be despised; for happiness (and this is obtained by doing the work one likes) is always worth more than mere sordid wealth.

The Necessary Matriculation Examination.

The matriculation examination—which is likely after July next to be raised to University status as the minimum—ensures that those who enter must be of a high educational standard; and after it has been taken, the acquiring of the Diploma of the Royal College of Veterinary Surgeons covers, before it can be obtained, a minimum period of five years with a further nine months for the University degree, if taken in addition. The standard, therefore, is as high as that set out for human medicine, and in regard to the expense which has to be reckoned upon by the parent or guardian, it is very little, if any, different from that of those who take the diploma of the other branch of medicine.

There are in Great Britain and the Irish Free State five veterinary colleges, which are situated in London, Liverpool, Edinburgh, Glasgow and Dublin, and these are the only training colleges. At each of these the students are examined by the members of a Board which is selected by the Council of the Royal College of Veterinary Surgeons, the ruling body which controls the destinies of the profession. The official address, from which all particulars can be obtained upon request, is 10, Red Lion Square, London, W.C.1; the Secretary and Registrar being at the present time Dr. F. Bullock, LL.D., Barrister-at-Law, to whom all inquiries regarding the veterinary profession as a career should be addressed.

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The Diploma of Membership of the Royal College of Veterinary Surgeons (M.R.C.V.S.) is the only diploma recognised in the United Kingdom of Great Britain and the Irish Free State as qualifying the holder to be placed on the Register of Veterinary Surgeons, or to practise veterinary medicine and surgery.

Registration of Students.

All students desirous of entering upon the course of training for the Diploma of Member of the Royal College of Veterinary Surgeons must make special application to the Secretary for registration as a veterinary student either before, or in any case not less than three months after, commencing his studies.

Preliminary Examination.

The following is a list of Preliminary Educational Examinations recognised by the Royal College of Veterinary Surgeons as rendering the holder eligible to be registered as a veterinary student.

The Final examinations for the degrees in Arts, Science, or Medicine of any University in the United Kingdom or of the British Dominions.

The Matriculation examinations in the Faculties of Arts or Science of, and all examinations accepted in lieu thereof by, any University in the United Kingdom of Great Britain and Ireland.

The school certificate examinations recognised by the Board of Education, *viz.* :

Bristol University.—School certificate or higher school certificate examinations. For particulars apply to the Registrar of the University.

Cambridge.—School certificate or higher school certificate examinations (*see also under* Oxford). For particulars apply to the Secretary, Cambridge Local Exams., Syndicate Buildings.

Durham University.—First school certificate or higher school certificate examinations. For particulars apply to the Registrar of the University.

London University.—General school examination or higher school certificate examination. For particulars apply to the Academic Registrar, South Kensington, S.W.7.

Northern Universities.—(Manchester, Liverpool, Birmingham, Leeds and Sheffield). School certificate or higher school certificate examinations. For particulars apply to the Secretary, Northern Universities Joint Matriculation Board, 315, Oxford Road, Manchester.

Oxford.—School certificate or higher school certificate examinations. For particulars apply to the Secretary, Oxford Local Examinations, Merton Street, Oxford.

School certificate or higher school certificate examinations. For particulars apply to The Secretary, Oxford and Cambridge Schools Examination Board, 40, Broad Street, Oxford.

Wales.—Central Welsh Board. School certificate or higher school certificate examinations. For particulars apply to the Clerk, Central Welsh Board, Cardiff.

Conditions of Recognition of School Certificates.—The school certificates mentioned above are recognised provided the candidate has obtained passes with credit in three subjects. The higher school certificates are recognised without condition as to subjects for the purpose of registration as a veterinary student.

OTHER RECOGNISED EXAMINATIONS.

University of St. Andrews.—Diploma of LL.A. (Particulars from the Secretary of the University.)

Universities of Scotland.—Preliminary examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Medicine and Surgery. (Particulars from the Secretary, Scottish Universities Entrance Board, 81, North Street, St. Andrews.

Scottish Education Department.—Leaving certificate.

Ministry of Education for Northern Ireland.—Senior school certificate.

Irish Department of Education.—Secondary school leaving certificate.

Civil Service.—The competitive examination of the Civil Service Commissioners for appointments in the Army.

War Office.—Special Army certificate.

College of Preceptors (Bloomsbury Square, W.C.1).—Examinations for senior certificate (with credit standard).

Educational Institute of Scotland (47, Moray Place, Edinburgh).—Medical, dental and veterinary preliminary examination.

Royal College of Physicians and Surgeons in Ireland.—Preliminary examination.

CONDITIONS OF RECOGNITION OF THE ABOVE EXAMINATIONS.

The examinations mentioned are recognised provided that at not more than two examinations the following subjects have been passed: English. Mathematics (arithmetic, algebra and geometry). One of the following languages: Latin, Greek, French, German, or any other approved modern language (grammar, translation into English from unprescribed books, translation from English). A second language selected from the above, or one of the following subjects, *viz.*, higher mathematics, experimental mechanics, chemistry, physics, botany, biology, geology, science, history or geography, if taken as separate subjects and not as part of the English papers.

EXAMINATIONS HELD OUTSIDE THE BRITISH ISLES.

(*a*) *Dominion Universities.*—An examination qualifying for admission to the courses and examinations required by the Medical Faculty for degrees in Medicine and Surgery in recognised Universities in the British Empire (other than Indian Universities). An examination qualifying for admission to the courses and examinations required by the Veterinary Faculty for degrees in Veterinary Science of the Universities of Sydney, Melbourne and Pretoria.

(*b*) *Indian Universities.*—An intermediate certificate of the following Indian Universities: Bombay, Calcutta, Lucknow, Madras, Punjab and Rangoon,

or an intermediate certificate granted by a recognised Board of Intermediate Education (India) provided that the certificate shows that the candidate has passed in English, mathematics, a language other than English, and chemistry or physics. Ceylon Medical College preliminary examination ; Singapore Medical College preliminary examination ; Egyptian Government secondary education certificate. No certificate from Indian and Colonial bodies under this section is accepted unless it shows that the examination has been conducted by or under the authority of the body granting it, includes all the required subjects, and states that all the subjects of examination have been passed at not more than two examinations.

(*c*) *Foreign Universities.*—Examinations entitling to the French Diplomas of Bachelier es Lettres and Bachelier es Sciences ; the German Abiturienten-Examen of the Gymnasia and Real-Gymnasia ; and other corresponding entrance examinations to the Universities in Europe.

SPECIAL EXAMINATIONS.

For candidates who have left school without obtaining a school certificate, the examinations held by the College of Preceptors or the Educational Institute of Scotland may be found convenient.

(*a*) The College of Preceptors hold examinations in March, June, September and December, at various centres, including London, Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham. Further information and copies of previous examination papers, price 2*s*. 2*d*. post free, can be obtained from the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

(*b*) The Educational Institute of Scotland holds an examination in the months of February, May, August and November at the following centres: Royal Veterinary College, Camden Town, London, N.W.1. ; Moray House, Holyrood Road, Edinburgh ; the Royal Technical College, 204, George Street, Glasgow ; the Royal Institution, Colquitt Street, Liverpool ; the Veterinary College of Ireland, Shelbourne Road, Dublin. The admission fee is £1 1*s*. 0*d*. All further particulars can be obtained from the Registrar, 47, Moray Place, Edinburgh. Copies of previous questions, price 1*s*. 2*d*. post free, and detailed syllabus, price 7*d*. post free, may also be obtained from the Registrar.

Students of Mature Age.—Candidates of mature age who are not in possession of one of the certificates in general education referred to above may, under exceptionalcircumstances, be admitted to the veterinary course at the discretion of the Council provided they submit with their application evidence of previous education and attainment which the Council may in any particular case resolve to accept in lieu of one of the foregoing certificates. All candidates for this concession must attend by appointment at the offices of the College for interview by a special committee. The fee for registration under this provision is £2 2*s*.

The Professional Course.

The normal course commences in the last week in September or the first week in October, and the year is divided into three terms. The first lasts from October to December, the second from January to March or April, the third from April or May to July. Students are strongly advised to enter upon their course in October. Admission may, however, in certain circumstances, be obtained at the beginning of the January term. At the end of each school year (July) an examination is held at each of the Veterinary Colleges by the Court of Examiners appointed by the Royal College of Veterinary Surgeons. Additional examinations are held in December at such centres as the Council may decide. The subjects of examination as as follows :

First Year.—(1) Chemistry, physics ; (2) biology : botany, zoology.

Second Year.—(1) Physiology, biochemistry ; (2) histology, embryology ; (3) animal management (after a two years' course of instruction).

Third Year.—(1) Anatomy of domesticated animals (after a two years' course of instruction) ; (2) pharmacology and therapeutics, toxicology, practical pharmacy ; (3) veterinary hygiene, dietetics and animal husbandry.

Fourth Year.—(1) (*a*) Veterinary pathology (including morbid anatomy, pathological histology, bacteriology, mycology, and the study of filter-passing viruses in relation to diseases and other morbid conditions of domesticated animals), (*b*) method of clinical pathology ; (2) veterinary parasitology (including protozoology, helminthology and entomology).

Fifth Year (after a two years' course of instruction).—(1) The principles and practice of veterinary medicine, embracing general and contagious diseases and preventive medicine, clinical diagnostics, special therapeutics and case reporting, clinical parasitology, meat inspection, jurisprudence ; (2) the principles and practice of veterinary surgery, embracing clinical diagnosis (including examinations for soundness) and case reporting ; surgical and applied anatomy ; operative surgery, including anæsthesia ; obstetrics ; jurisprudence.

Examination Papers.—Copies of examination papers, price 3*d.* per set, post free, for each year of the course, may be obtained from the Secretary, R.C.V.S., 10, Red Lion Square, W.C.1. A remittance for the cost must be sent with the order.

Exemptions.—Exemptions from attendance at the first year's course and from the examination at the end of that year in the subjects of chemistry, physics and biology may be granted to : (*a*) Graduates in art, science, medicine or agriculture, and holders of the Diploma of M.R.C.S., or L.R.C.P., on production of certificates of having passed in chemistry and biology. (*b*) Matriculated students in science, art, or veterinary science who have passed a University examination (with honours or the equivalent) in chemistry (organic and inorganic) and physics, botany and zoology. (The pre-medical examination of the Conjoint Board in chemistry, physics and biology is recognised for this purpose, but the first M.B. examination, which does not as a rule include organic chemistry, can only be

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recognised *pro tanto*.) (*c*) Holders of a higher school certificate who have passed in chemistry (organic and inorganic) and physics, and either (*a*) botany and zoology, or (*b*) biology as group or main subjects.

Applications for the concession should be made to the Secretary, R.C.V.S., before the beginning of the course, and complete documentary evidence must be supplied as to the diplomas or certificates held. The fee for registration of an exemption under these rules is £4 4*s*.

University Degrees.

The Universities of Edinburgh and London grant degrees of B.Sc. and D.Sc. in veterinary science, and the University of Liverpool grants degrees of B.V.Sc., M.V.Sc., and D.V.Sc. The course of training for these degrees runs concurrently with the course for the Diploma of M.R.C.V.S., but an extra year may be required to complete the degree course. The degree is not in itself a qualification to practise, the Diploma of M.R.C.V.S. alone entitling the holder to admission to the Register of Veterinary Surgeons. But the possession of a University degree is of great advantage, and all students whose certificates in general education entitle them to matriculation at the Universities mentioned would be well advised to take the combined course.

Application for admission to the degree courses must be made direct to the University concerned. The University of Edinburgh also grants a post-graduate Diploma in Tropical Veterinary Medicine (D.T.V.M.), particulars of which will be found in the University calendar.

Cost of the Course.

Tuition Fees.—Tuition fees, payable in advance, are about thirty guineas for each academical year. At Liverpool the fee is £30 a year for the M.R.C.V.S. course alone, or £35 for M.R.C.V.S. and B.V.Sc. courses. There are in addition certain fees for library, athletic club, etc., which vary at each college. All students must attend an extra mural course of practical instruction of not less than six months' duration. No scale of fees has been fixed for this instruction, and students must make their own arrangements.

Maintenance Expenses.—These will vary according to individual requirements, but it is estimated that students will require from £100 to £150 per annum. The colleges are not residential, but the respective secretaries will be glad to advise as to suitable lodgings.

Examination Fees.—The examination fee payable to the Royal College of Veterinary Surgeons is £6 6*s*. for each examination. Candidates referred in one subject pay a fee of £4 4*s*. for re-examination in that subject.

Registration Fee.—On passing the final examination a fee of £5 5*s*. is payable for the registration of the new graduate's name in the official Register of Veterinary Surgeons.

Annual Fee.—Every member of the Royal College of Veterinary Surgeons practising in Great Britain and Northern Ireland is required by the Veterinary

Surgeons Act, 1920, to pay an annual fee of £1 1s. to the Royal College of Veterinary Surgeons. Every member practising in the Irish Free State is required by the Veterinary Surgeons Act, 1931, to pay an Annual Registration Fee of £2 2s. to the Veterinary Council in Dublin.

SCHOLARSHIPS.

Colonial Veterinary Scholarships.—A few scholarships are awarded annually by the Colonial Office in order to form a pool of qualified candidates from which vacancies in the Colonial Veterinary Service may be filled. A candidate, unless already a member of the R.C.V.S. (*see below*), must hold an appropriate science degree, or equivalent qualification, and, if selected, is required to obtain the Diploma of M.R.C.V.S. during his scholarship period. These scholarships are of the value of £200 per annum with provision for training fees. Particulars may be obtained from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, S.W.1, to whom completed applications must be sent before the end of May.

Carnegie Trust Bursaries.—Assistance towards payment of class fees is awarded to eligible applicants of Scottish birth or extraction, or those who have been pupils of schools under the Scottish Education Department. Applications for forms can be made to the Secretary of the Trust, 22, Hanover Street, Edinburgh, after September 17th, but fully completed forms must be lodged not later than October 25th (20th for new applicants) for the winter session, and May 10th for the summer session. Applicants must have obtained the leaving certificate of the Scottish Education Department with a minimum of three higher grade passes, and be eligible for matriculation in a Scottish University.

County and Municipal Bursaries.—The education authorities of counties and certain boroughs in Scotland award bursaries covering fees, and in some cases maintenance. Applications should be addressed to the Executive Officer of the Education Authority of the district in which the applicant resides.

Ministry of Agriculture.—Scholarships, sufficient to cover fees and maintenance, are also available to the sons of agricultural workers. For conditions, apply to the Secretary, Whitehall Place, London, S.W.

ROYAL VETERINARY COLLEGE, LONDON.

The Clement Stephenson Scholarship of £200 a year for post-graduates; the John Jeyes Scholarship of £100; and the Bayer Scholarship of £75. For particulars apply to the Secretary.

ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

Certain University Scholarships are open to students who are taking courses of instruction that lead to the degree of B.Sc. (Vet. Sci.). Particulars will be found in the calendar of the University of Edinburgh.

MacCallum Bursaries.—Two bursaries are awarded, preference being given to applicants from Maybole, to candidates taking the courses for M.R.C.V.S., and for B.Sc. Edin. For particulars apply to the Town Clerk, Maybole.

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Gemmell Scholarships.—This scholarship may be awarded to the student who obtains the highest aggregate marks in the examinations in chemistry and physiological chemistry. Annual value about £20, tenable for two years.

Department of Agriculture for Scotland.—Degree course scholarships, each not exceeding £300 in value or £60 in any one year. Available only for children of rural workers, or for *bona fide* agricultural workers. Apply to the local education authority or the department not later than April 15th.

GLASGOW VETERINARY COLLEGE.

Carnegie Trust Bursaries.

Department of Agriculture for Scotland.—Degree course scholarships, each not exceeding £300 in value or £60 in any one year. Available only for children of rural workers, or for *bona fide* agricultural workers. Apply to the local education authority or the department not later than April 15th.

LIVERPOOL UNIVERSITY VETERINARY SCHOOL.

Scholarships of the University which may be competed for amongst others by students proceeding to a veterinary degree: Entrance scholarships of the University of Liverpool are awarded on the papers set for the higher school certificate examination of the Joint Matriculation Board of the Northern Universities. Candidates for these scholarships should apply to the Registrar of the University of Liverpool for a special pamphlet giving detailed conditions and also for a syllabus of the examination for the higher school certificate. The scholarship pamphlet also gives particulars of scholarships, offered by outside bodies, which may be held at the University of Liverpool. Candidates for entrance scholarships need not necessarily be candidates for the higher school certificate, but all candidates to whom scholarships are awarded must produce evidence of either having passed or received exemption from the matriculation examination of the Joint Board before entering upon the course for the degree of B.V.Sc.

VETERINARY COLLEGE OF IRELAND, DUBLIN.

An exhibition, entitling the holder to free tuition in his second year, is awarded to the student who obtains the highest marks in all the class examinations of the first year. In the scheme of the Department of Agriculture for scholarships in technical agriculture, etc., provision is made for the award of scholarships in veterinary science tenable at the Veterinary College. Particulars in this regard may be obtained on application to the Secretary, Department of Agriculture, Dublin, C.17.

POST-GRADUATE SCHOLARSHIPS.

ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

Centenary Fellowship.—Annual value £250; tenable for one year, but may be renewed for a second year. The Fellow must engage in research.

James Tindal Scholarship.—Annual value £45. Awarded to the student of the Royal (Dick) Veterinary College who, in the opinion of the Board of Management, has been most distinguished and successful in one or all classes of the College.

University Endowments for Research.—Certain of these are open to those who hold University degrees.

PRIZES AWARDED BY THE ROYAL COLLEGE OF VETERINARY SURGEONS.

(*a*) *Walley Memorial Prize.*—Value £7 11*s.* 4*d.* Awarded each year in October on the marks gained in the written examination in pathology, materia medica, and hygiene, held in the preceding December and July.

(*b*) *Williams Memorial Prize.*—Value £9. Awarded each year in January on the marks gained in the final examinations held in the preceding July and December.

(*c*) *Fitzwygram Prizes.*—Value, first prize, £40 ; second prize, £25 (approximate values). Awarded each year in October to the two successful candidates at the final examination held during the preceding session who have gained the highest and second highest aggregate of marks at all the professional examinations. No candidate who has been rejected at an examination is eligible for these prizes.

Jubilee Memorial and Bursary Prize.—This bursary is awarded every four years by the Royal College of Veterinary Surgeons on the results of a special examination. The value is £140 and the Bursary is tenable for one year. Applicants, who must have graduated as Members of the R.C.V.S. since the date of the last award, should enter their names with the Secretary of the R.C.V.S., from whom all further information can be obtained.

AGRICULTURAL RESEARCH COUNCIL.

Studentships for Research in Animal Health.—Value £300 per annum. Open to holders of the Diploma of M.R.C.V.S., and tenable for three years. Nomination forms and further information may be obtained on application to the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1.

COLONIAL OFFICE.

Colonial Veterinary Scholarships.—A Member of the R.C.V.S. may be awarded one of the Colonial Veterinary Scholarships mentioned, to enable him to undertake research, or if already in possession of a University degree in addition to the M.R.C.V.S., to take a further degree.

GOVERNMENT APPOINTMENTS.

(*a*) *Royal Army Veterinary Corps.*—Candidates must be Members of the R.C.V.S. and between the ages of twenty-one and twenty-eight. Approved applicants will be submitted to a special entrance examination, and candidates on appointment as Lieutenant on probation will be required to undergo such further examinations as the Army Council may direct. Promotion to Captain is obtainable after three and a-half years' service, and to the rank of Major after eight and a-half years' Captaincy. Selected Majors of not less service than fifteen years may be promoted to Lieut.-Colonel. Colonels are selected from Lt.-Colonels

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of five years' standing. For particulars of pay, conditions of service, etc., apply to the Director-General, A.V.S., War Office, Whitehall, S.W.1.

(*b*) *Indian Veterinary Service.*—Appointments are made as vacancies occur. For particulars of pay, conditions of service, etc., apply to the Revenue Secretary, India Office, S.W.1.

(*c*) *Ministry of Agriculture and Fisheries.—Veterinary Inspectors.*—Candidates must be Members of the R.C.V.S. between the ages of twenty-one and thirty-two. After two years' probation a special examination must be passed in pathology and bacteriology under the Diseases of Animals Acts and Orders. Candidates who hold the Diploma in Veterinary State Medicine of the R.C.V.S. may be exempted from the examination in pathology and bacteriology. For further information apply to the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1.

(*d*) *Irish Free State Department of Agriculture* (*Veterinary Inspectorate*). —For particulars of appointments apply to the Chief Veterinary Officer, Veterinary Branch, Upper Merrion Street, Dublin.

(*e*) *Northern Ireland Ministry of Agriculture* (*Veterinary Department*).— For particulars of appointments apply to the Secretary, Civil Service Commission, 15, Donegall Square West, Belfast.

(*f*) *Colonial Veterinary Service.*—Candidates for veterinary appointments in the Colonies must be members of the R.C.V.S., between the ages of twenty-one and a-half to thirty, with a possible extension to thirty-five. Appointments are made by selection, but for the present practically all vacancies are reserved for candidates who have held the Colonial Veterinary Scholarships hereinbefore described. Full information concerning conditions of service, salaries, pensions, etc., is given in the Colonial Service Memorandum " Recruitment No. 4," which may be obtained from the Director of Recruitment (Colonial Service), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1, to whom all applications should be addressed.

Veterinary State Service.—Numerous posts are now available in each county of Great Britain for the examination of dairy herds, especially with regard to tuberculosis. Applicants should possess the Diploma of Veterinary State Medicine. The salaries average £450 to commence with, rising to £600, and afterwards, for the senior posts, up to £1,000 or £1,200.

Meat Inspection and Municipal Service.—In Great Britain a few of the larger cities have public abattoirs with veterinary inspectors as officials ; and in some city corporations the duties of the veterinary officials include the supervision and management of the corporation stud of horses and the testing of the dairy herds which supply milk to the city area. In Scotland all meat for human food *must* be inspected by a veterinary official.

Fellowship Diploma (*F.R.C.V.S.*).—This can be taken after the member has been qualified for two years and is not under twenty-three years of age. The examination fee is £15 15s., and the qualification includes a Thesis on some

original subject. Further particulars can be seen in the Register of the R.C.V.S., to be obtained at 10, Red Lion Square, London, W.C.

Diploma of Veterinary State Medicine (*D.V.S.M.*).—This is granted to graduates after an examination preceded by a special course of twenty weeks on the subjects of epizoology, veterinary bacteriology and protozoology, veterinary hygiene and toxicology, meat inspection, and dairy and milk inspection. For further details see the Register of the R.C.V.S.

Diploma in Tropical Veterinary Medicine and Hygiene (*D.T.V.M.*).—This is granted to graduates after an examination preceded by a special course of twenty weeks on the subjects of protozoology, helminthology, entomology, pathology and bacteriology, animal husbandry, hygiene, and epizoology and toxicology. For further details see the Register of the R.C.V.S.

HANDBOOK FOR VETERINARY SURGEONS.

For further information regarding the veterinary profession see the " Handbook for Veterinary Surgeons," by Dr. Fred Bullock, LL.D., published by Messrs. Baillière, Tindall & Cox. Copies may be obtained from the Secretary, R.C.V.S., 10, Red Lion Square, London, W.C., price 7*s.* 6*d.* net.

THE PROSPECTS OF THE PROFESSION.

IN considering the prospects of any career for one's boy or girl a parent who has " gone through the mill " realises only too well that money is not everything, and compared with happiness and contentment, the so-called " filthy lucre " (although admittedly a necessity) occupies only a secondary place. *If* a sufficient modicum of each can be obtained in a career by a man (or woman) attaining their desire of working in a congenial atmosphere, then is their happiness and contentment great indeed.

To such an ideal may the student of veterinary medicine attain—*if he loves his job.* A comfortable livelihood in a healthy and busy life, and with reasonable attention to the commercial side (this must not be forgotten—as even veterinary surgeons have butchers' and bakers' bills to pay), enough saved to provide for old age and a decent burial at the finish. The young graduate of to-day is a thousand times better off than his prototype of forty years ago. He starts on the shelf where his grandparent had to stand on the floor—and this, not only in regard to personal comfort (such as the car gives over the old-time harnessing up of the horse and gig when called up from the first beauty sleep to drive out in the rain or sleet and attend an old cow in dystokia), but also in regard to the modern application of drugs, and the other adjuncts of a busy practice.

There will always be graduates who prefer practice, notwithstanding the irregularity of the hours and the occasional difficulty of collecting one's fees, and it certainly has many charms, for a good veterinary surgeon is a welcome guest in every farmer's household ; but for those who prefer more settled hours there is, nowadays, an excellent choice of one or other of the Services. If anxious to go abroad,

the Colonial Services offer quite good posts with a suitable pension usually after twenty or twenty-five years, and the Britisher has great opportunities in this direction owing to our vast and widespread possessions. If preferring to stay at home, the County or State and Municipal Services are comparatively well paid, and holidays are certain. Whilst if inclined to research or academic teaching, a certain number of the more brilliant theoretically can find outlets for their desires in this direction. To the woman graduate the Army and the Colonies are barred at present, but even in these respects other countries are already ahead.

At the present time there is great difficulty in finding enough graduates to go round. Positions commencing at £400, and even £500, a year have not many suitable applicants, as the veterinary profession is not at all crowded, nor will it be overcrowded for another ten years; and if the Minister of Agriculture's Livestock Industry Bill is passed there will be at least three new central abattoirs all requiring veterinary officials; and these buildings will lead to others. In fact in this respect the country may even in time attain the position in regard to our abattoirs as has been for many years that of our Continental neighbours. New Zealand and other of our colonial possessions are far ahead of us, and the present lamentable position in England in this respect is a " national disgrace."

THE TEACHING COLLEGES

THE ROYAL VETERINARY COLLEGE AND HOSPITAL, LONDON.

THE College, which was founded in 1791, occupies its original site in Great College Street, Camden Town. This was the first veterinary college in Great Britain, its first Principal being Charles Vial St. Bel, formerly Professor of Veterinary Medicine at the Royal School at Lyons. In 1830, H.M. King William IV became Patron, and in 1875 the institution was incorporated under a Charter granted by Her Majesty Queen Victoria. In 1936 the old form of government having become unsuited to meet modern requirements and the expanding work and connections of the College, a new Charter of Incorporation was granted by H.M. King Edward VIII.

The College is divided into six teaching Departments, as follows: Surgery (including Obstetrics and Jurisprudence), Medicine (including Meat Inspection, Pharmacy and Therapeutics), Animal Husbandry (including Dietetics), Physiology, Toxicology and Chemistry, Anatomy and Biology (including Histology and Embryology) and Pathology (including Bacteriology and Parasitology). The curriculum followed is based on the syllabus of examinations for the Diploma of Membership of the Royal College of Veterinary Surgeons, the training of students for this diploma being the principal work. Students also receive, if desired, the prescribed courses of instruction for the B.Sc. degree in

Veterinary Science of London University; various teachers of the College being recognised teachers of the University for this purpose. On the completion of the new main buildings in 1937, the course of instruction for the Diploma of Veterinary State Medicine will also be given. Practitioners' refresher courses, suitable for qualified men who have been out of touch with recent practice, can also be arranged.

Adequate material for the practical instruction of students is assured by the two clinical departments: the infirmary for the animals of annual subscribers, and the Beaumont Animals' Hospital, which latter provides free treatment for the animals of poor persons. Between them the two departments see some 15,000 cases a year.

Attached to the College is the Research Institute in Animal Pathology, with a body of research workers engaged in the study of animal diseases. The Institute staff are also the teachers of the Department of Pathology, thus endeavouring to keep the teaching in close touch with the latest work in research.

There are at present some 350 men and women students in the College. The fees payable in the past have averaged £30 per annum, but there is a likelihood, in view of the much greater facilities to be given in the reorganised and rebuilt College, that these may be increased in the next academic year. The College terms are from September to December, January to March, and April to July; medals and certificates being awarded to the best students.

For post-graduates there are the Clement Stephenson Scholarships of £200 a year each; the John Jeyes Scholarship of £100, and the Bayer Scholarship of £75 annually. Further details can be obtained upon request to the Secretary.

THE UNIVERSITY OF LIVERPOOL SCHOOL OF VETERINARY SCIENCE.

It was in 1904 that the University of Liverpool established its Veterinary School. Prior to that time there existed a Department of Comparative Pathology in the University, but the work carried on in that Department was largely post-graduate.

The Veterinary School is an integral part of the University, for the science has been established as a branch of education by the institution of two endowed Chairs in purely veterinary subjects, together with a number of established lectureships. Students of the School take their preliminary science courses with students of the Faculties of Medicine and Science.

In addition to instruction for the M.R.C.V.S. diploma, courses are offered leading to the degree of Bachelor in Veterinary Science (B.V.Sc.). For the degree, matriculation is an essential preliminary requirement. The degrees of Master (M.V.Sc.) and Doctor (D.V.Sc.) in veterinary science are awarded to graduates on the results of higher study or research. A Diploma in Veterinary Hygiene (D.V.H.) is also awarded by the University, but the regulations

governing the award of the diploma are under revision, and courses are not being held at present.

Among the departments of the School is a Veterinary Hospital where students of the senior years receive their clinical instruction. A large municipal abattoir is within easy access of the University, and excellent facilities are available here for instruction in meat production and inspection and in other problems associated with the meat industry.

Tuition Fees.—B.V.Sc. and M.R.C.V.S., £175, payable in five annual instalments of £35. M.R.C.V.S. only, £150, payable in five annual instalments of £30.

In addition to the above tuition fees all students are required to join the Guild of Undergraduates, the annual subscription to which is £3 3*s*. This subscription entitles one to membership of the Students' Union, the Athletic Club, reading rooms, etc. The Students' Union is the centre of undergraduate social life, and here the veterinary student comes into contact with students of all Faculties —an important factor in the development of good citizenship.

The University awards annually a number of entrance scholarships and studentships on the results of the higher school certificate examinations, and prizes are offered to the best student in some of the subjects of the course.

Halls of residence for men and women students are attached to the University, details of which may be obtained from the Wardens. Students are also permitted to reside in private lodgings. Accommodation for first-year students is limited, and application for admission to the school should be made early in the year in which the applicant desires to commence his studies.

Further information may be obtained from the Registrar, or from the Director of Veterinary Studies.

THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

THE College was founded in 1823 by William Dick, who on his death left the whole of his estate as endowment. In 1914–16 an entirely new college was built in conformity with modern requirements of professional education and research. The number of students has materially increased during the last few years. This, coinciding with a lengthening of the professional curriculum from four years to five years, has led to a scheme for a considerable extension of the College buildings. In 1911 the University of Edinburgh instituted degrees (B.Sc. and D.Sc.) in Veterinary Science, to which students of the College are admitted, and in 1934 the association of the College and the University was made still closer by affiliation, by an Order in Council.

Curriculum.—Courses of instruction are given in accordance with the regulations laid down for the diploma of M.R.C.V.S.; these also, *pro tanto*, qualifying for the B.Sc. (Vet. Sci.) examinations of the University of Edinburgh. Special courses leading to the degree are also given in the Departments of Anatomy

and Physiology. Post-graduate instruction is given for the D.V.S.M. of the Royal College of Veterinary Surgeons and the D.T.V.M. of the University of Edinburgh.

Fees.—Class fees for each academic year of three terms are £26 5*s*. A matriculation fee of 10*s*. 6*d*. and an Athletic Club fee of 10*s*. are exigible from each student at the beginning of each session.

Bursaries, Prizes, etc.—Students who can comply with the necessary conditions are eligible for benefits under the Carnegie Trust for the Universities of Scotland. Bursaries are also granted by the education committees of counties and certain burghs. MacCallum bursaries are granted by the Town Council of Maybole to students who belong to that town or neighbouring parishes.

The Gemmell Scholarship is awarded annually to the student who obtains the highest aggregate marks in the classes of chemistry and physiological chemistry. Certain University scholarships, endowments for research and bursaries are open to students taking courses of instruction leading to the degree of B.Sc. (Vet. Sci.). Colonial veterinary scholarships and scholarships and studentships granted by the Ministry of Agriculture and the Department of Agriculture for Scotland are tenable at this College. Medals and other prizes are allocated to the various subjects of the professional curriculum.

Post-graduate Fellowships, etc.—As a permanent memorial of the centenary of the foundation of the College, a post-graduate Fellowship was established by public subscription. The annual income of the Fellowship is about £250.

The James Tindal Post-graduate Scholarship of the approximate annual value of £45 is for the purpose of helping students of distinction to pursue advanced study.

Further details can be obtained upon request to the Secretary. Women students have not, up to the present, been admitted to this College.

THE GLASGOW VETERINARY COLLEGE.

Since 1924 this College has had no grant from the Government, but has managed nevertheless to hold its own. During the grantless period its enrolment for the membership course has increased from 68 to 282, and courses for the D.V.S.M. and for the B.Sc. in Veterinary Science of London University have been added. One professor and three wholetime instructors have been added to the staff. Women students are admitted.

Under the one portal system, and with the syllabus for the five-year course as full as it is, there is little scope for much difference in teaching as between one college and another. Glasgow has, however, managed to be unique in two particulars—there is no college clinique and no systematic anatomy is taught.

Dealing first with the clinical training, the College has hitherto, owing to the splendid co-operation of local practitioners, been able to distribute its men daily in

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the neighbourhood; and has recognised that for most purposes training gained in actual every-day practice is much more instructive than anything a college can provide. Proof of the success of the system is shown in the demand for Glasgow graduates as assistants. They are snapped up eagerly, the same practitioners applying again and again as the older ones are promoted. The free clinic operated by the Glasgow Cat and Dog Home has also students attending there by roster.

No systematic anatomy is taught, all instruction being related to the actual dissection conducted by the students. The teaching is based on Dr. Bradley's " Topographical Anatomy of the Dog," bones and other structures being introduced at the appropriate places. Students form groups of two or three; each group is assigned a dog and one other animal, four groups have a horse, one a cow, one a pig; all other groups are given sheep; the cat and fowl are only demonstrated on prepared specimens. The small animals assigned are supposed to last the two years of the course; fresh horses and cattle are killed each term. Thus the junior students are all at one stage on a number of species, and the senior students at another. There is a daily demonstration for each class, chiefly on the students' dissections of the day before, though much prepared material is also used. Students are required to study the dissections of all species. The fees and length of study terms are in line with the other veterinary colleges, and details will be supplied by the Secretary upon request.

THE VETERINARY COLLEGE OF IRELAND.

THE Veterinary College of Ireland was founded under Royal Charter in 1895, having then the prefix " Royal," and the Board of Governors was nominated by the Crown, the Royal Dublin Society and the Commissioners of National Education. Their first funds were granted under the Department of Agricultural and Technical Institution (1899), and in 1900 the buildings were commenced on a site which was not far away from Ballsbridge where the famous Dublin Show is always held annually.

At first the classes were held in temporary buildings; the permanent laboratories and clinical departments being completed in 1908. These consist of the necessary accommodation for the students in the shape of lecture rooms, laboratories, etc., with loose boxes, cow byres, kennels, etc., for the reception of clinical cases.

The College fees amount to £25 every session, with an additional £1 on entrance and an annual subscription of £1 to the Students' Union Fund. The course of study is that in accordance with the instruction of the Royal College of Veterinary Surgeons, and the examinations are carried out by the Examining Board of the Royal College of Veterinary Surgeons. There are the usual class prizes, medals and certificates as with the other Colleges, and women students are admitted.

General Articles

VETERINARY EDUCATION.

By COLONEL G. K. WALKER, C.I.E., O.B.E., F.R.C.V.S.

THE Report of the Conference on the Medical Curriculum, which was published a few months ago, is of outstanding importance to the veterinary profession and deserves the particular attention of those responsible for framing the veterinary curriculum, especially of teachers and of examiners. On the whole the analogy is so complete that in most cases it is only necessary to read the word "veterinary" for the word "medical."

It must be allowed that in the past the veterinary curriculum has suffered from some of the defects brought out in the report. Some of these have been remedied in the revised curriculum, but there remain obvious imperfections which require attention as soon as possible. With a few amendments the present course of study could probably be brought into conformity with many of the more applicable recommendations of the conference. There is still a tendency in the curriculum to the water-tight compartment system which does not encourage co-operation among the teachers of the various subjects.

Veterinary education being very highly specialised, the demand on the student is very severe, and it is difficult to see how he can be brought into further contact with other less specialised branches of study without extending his period of instruction. That is hardly possible as a practicable proposition. Nevertheless, something has been done in this direction by the grant of certain exemptions to qualified candidates. The increased use of higher certificates for basic sciences is a manifest advantage. In any case the isolation of teaching colleges is an error that should be avoided.

It is interesting to compare the existing courses of study for veterinary and medical diplomas. In the following table the curriculum of the Conjoint Board for their diplomas is compared with the diploma course of the Royal College of Veterinary Surgeons. The main subjects are divided for convenience in the manner recommended by the Conference.

CONJOINT BOARD.	R.C.V.S.
PRE-MEDICAL STUDIES.	
Pre-medical Examination.	*First examination.*
Part I. (*a*) chemistry; (*b*) physics.	(i) Chemistry and physics
Part II. Elementary biology.	(ii) Biology.

PRE-CLINICAL PERIOD (TWO YEARS).

First Professional examination (two years).	*Second examination (one year).*
Section I.—(*a*) Anatomy, including histology and embryology.	(i) Physiology, including biochemistry.
	(ii) Histology and embryology.
(*b*) Physiology, including biochemistry.	(iii) Animal management.
	Third examination (one year).
Section II.—Pharmacology, practical pharmacy and materia medica.	(i) Anatomy (two years' study).
	(ii) Pharmacology and therapeutics; toxicology; pharmacy.
	(iii) Veterinary hygiene, dietetics and animal husbandry.

THE CLINICAL PERIOD.

Final examination (three years).	*Fourth examination (one year).*
Section I.—Pathology and bacteriology.	(i) Veterinary pathology.
	(ii) Veterinary parasitology.
	Fifth examination (one year).
Section II.—Part I—Medicine.	(i) Veterinary medicine and meat inspection (two years' study).
Part II—Surgery.	
Part III—Midwifery and gynæcology.	(ii) Veterinary surgery and obstetrics (two years' study); jurisprudence.

It will be seen that the first examination of the R.C.V.S. is comparable to the pre-medical examination, and that in consequence the veterinary curriculum extends over four years against five for the medical, which requires three years in the clinical period. In the pre-clinical period of the veterinary curriculum time has to be found for two subjects, *viz.*, animal management and veterinary hygiene, which are not found in the medical curriculum. In devising a scheme of study on the lines of the report, this is a complication with which it is not easy to deal. If the clinical period of the veterinary curriculum could be extended it would doubtless be a great advantage, but that is not possible at present. The position is better than it appears at first sight, as under Bye Law 74 a minimum period of six months extra-mural clinical instruction is now required. It should not be overlooked, however, that medical students are on hospital duty during vacations.

The report stresses very strongly the desirability of introducing the student, during the last two terms of the pre-clinical period, to the elements of pathology, immunology and bacteriology. In the veterinary curriculum this recommendation applies with equal or even more force considering that veterinary hygiene is taken in this period. It would be difficult to fit elementary pathology in as a separate subject unless, as recommended in the report, the examination in pharmacology were dropped. At the same time it might not be asking too much if

some elementary instruction in pathology, immunology and bacteriology were included in the veterinary hygiene syllabus.

The recommendation contained in the report that, during the pre-clinical period (second and third year of the veterinary curriculum), the work of the student should be arranged by a board of teachers representing anatomy, physiology, chemistry, biochemistry, pharmacology and pathology, is most important and should be adopted. It is obvious that the subjects of the second and third years in the veterinary curriculum are too disjointed at present and that some amendments are necessary to ensure more cohesion in the teaching. The subjects should be regarded as a whole, forming as they do the basic training for the study of the abnormal at a later period.

Finally, it cannot be too strongly emphasised that many of the premises and recommendations contained in the Report make it a very valuable contribution to medical and veterinary educational problems.

EQUINE PRACTICE.

By V. BERWYN JONES, M.R.C.V.S.

Wonersh, Guildford.

THE following observations and suggestions are intended to be some guide to the veterinary student essaying to make his livelihood in the practice of what is possibly one of the most venerable arts. I say "arts" advisedly, because of all the types of veterinary practice, equine work calls for a full knowledge of the animal in health, the normal animal, its normal habits, normal gait, the accepted methods of feeding, handling, breaking, making, hunting, training, racing, and the ways in which all the multitudinous tackle connected with its varied uses should and should not be applied. Unless a student has been brought up with horses I do not think that it is possible for him to acquire such knowledge during his college vacations.

I do not think that he can possibly become *au fait* with all those small details which, if dealt with in an obviously incorrect or incompetent manner, will of itself be more than sufficient to make it obvious to a client that he does not know his job: it may be something quite trifling, and not in any way connected with veterinary science, but in the client's view it will mean a complete loss of faith in the practitioner concerned, and, moreover, it will probably mean a good story for him to tell to his cronies, all of whom should be potential clients.

The difficulties of equine practice are, even to one knowledgeable in the ways of horses—a so-called "horsey man"—often sufficiently puzzling, without the additional handicap of lack of knowledge of everyday details and methods.

Probably the late Professor MacQueen's famous valedictory address to those of his students who had just qualified—"Hoots! gentlemen, by hook or by crook, you have just obtained your Diplomas and are now entitled to go out

into the world and foist yourselves upon an unsuspecting public"—applies less to those about to take up equine practice, because the large majority of horse owners are sufficiently knowledgeable to recognise merit. I sometimes feel that the same cannot be said in small animal practice, in which ability has perforce so often to play second fiddle to a good "bedside manner." Even so, a good bedside manner is not to be sneered at, because it is only by obtaining the confidence of one's client that the patient can be satisfactorily and adequately treated.

To obtain that confidence it is not necessary to be overwhelmingly sauve or to display exquisitely polished manners, but to be something of what is termed "a man of the world"—to be able to meet and speak naturally and normally, and, if possible, equally charmingly, to all manner and types of men—to be what the Americans call a "good mixer," and this without in any way being either condescending, or in allowing oneself to be patronised. The ability to give clear and decisive instructions must also be cultivated, because in many stables the actual treatment is left to be carried out by the head lad or stud groom, and unless the latter's confidence is obtained orders will either be evaded or, at best, followed so half-heartedly that no good to the patient could result.

I suppose it is because the horse is of such greater relative value that so many deceits and malpractices are apt to arise in the trade. Otherwise honourable people often allow their consciences to take a back seat to such an extent that when selling a horse they will actually take pride in obtaining more than its value, by some trick. To them "horse-coping" is a perfectly legitimate game of unfairly taking money. It is, of course, most important that the equine practitioner should be aware of these methods, because he must not only be able to safeguard his more ignorant clients, but because he is so often staking his professional reputation by a signed certificate. I shall always remember how, a year or so after I started practice on my own account, I was completely deceived by a well-known dealer; not that I suggest that dealers as a class generally do such things, for, as a rule, a dealer is just as jealous of his reputation as a veterinary surgeon. In this case I was asked by a client to go up to the Midlands to examine a high-priced show jumper which he was most anxious to purchase. After a careful examination I could find nothing to debar me from giving a clean certificate, although there was something about the way the horse went (his gait) that I did not like—I felt that something was wrong, but for the life of me I could not place it—the horse went level and freely, and yet I was not satisfied. The dealer was apparently most anxious that I should satisfy myself that everything was correct, and fell in with my suggestion that I should like to have the shoes removed with what I would now, more maturely, consider suspicious alacrity.

However, I passed the animal. Two months later he fell lame with a bad overreach. Part of the treatment consisted of "tubbing" the foot, and an overzealous groom, in adding an excess of disinfectant, succeeded in denuding the pastern of hair. This brought to light the scars of a very neat double low plantar neurectomy. A lawsuit nearly resulted, and in Professor MacQueen's view—

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that I at the time considered unfair but now respect—I was to blame. I was. The only point that saved me was that the purchaser was present at my examinations, and was told that although I felt bound to give a clean certificate, I did not like the animal's gait.

I am glad to say that the purchaser remains a valued friend and client to this day; but it might well have been otherwise. I need hardly draw the moral.

Talking of surgery, it especially behoves an equine practitioner to be familiar and skilled with the " tools of his trade," not only a good surgeon in so far as the art of surgery requires, but a confident and bold surgeon, because much of the surgical work is carried out away from his own yard. Many veterinary surgeons can and do operate well in the privacy of their own premises, but become nervous and therefore unskilled when working with strangers.

A youngster starting " on his own " in a strange district desires, of course, to get into touch with the horse-owning public amongst whom he wishes to make his practice. He can do this in a perfectly legitimate way by going out with the local hunt, and if he is a good horseman and well mounted he will soon be remarked, and from the fact that he " goes well " and is neatly turned out, he will be what the Tibetans term " acquiring merit." There is no doubt that even an established practitioner does well to appear with hounds when he has the opportunity, for he at least benefits in health (someone has said that the outside of a horse was best for the inside of man). Even should he be too busy to have any real right to be out, he can make excuses to himself, that it is after all part of his job—anyway it is one of the pleasant things in life. Actually the ability to be able to ride moderately well, to have a secure enough seat to be able to listen to a horse's wind and observe and feel things other than the necessity of not falling off, is almost a *sine qua non.*

When the dizzy heights of a consultative practice are attained, it is not so essential, but to the man that has a hunting practice it is, in my view, most necessary. I can remember dozens of cases in which had I not ridden and galloped the animal I should not have detected unsoundnesses; moreover, a client often wants to know one's opinion as to whether a horse is a " good ride," has a good mouth, manners, and is a good jumper, etc. It is impossible to state the answers first hand unless one can ride and has had a sufficient experience of horsemanship to know what a " good ride," etc., means.

It is just possible that a very keen young fellow of the right type—by which I mean the much-abused public school type—an athletic, wholesome, well-spoken, well set-up young man, might be able to be of some use in an equine practice after his five years at college, even had he no previous experience of horses, if he took pains during his vacations to allot all his time amongst the following: (1) A commercial stable; (2) a dealer's yard; (3) a hunting and polo stable; (4) a racing stable, training under both rules; (5) a good farrier's yard; (6) the various types of equine practice. Even so he could not know as much of the

everyday affairs and problems of horse management as one that had owned and kept and " done " his own horses.

I would repeat and emphasise that it is by the little things that a recent graduate fails or succeeds in practice.

Equine practice is probably the most pleasant and the most interesting of all types of veterinary practice, but it does call for a very specialised knowledge of unscientific detail that is not imparted to the students at the various colleges; it is true that they acquire a smattering of the lore, but with my experience of students it does not prevent them from making themselves look, and no doubt feel, very unworthy when that small knowledge comes to be applied.

I cannot therefore advise any student to attempt to earn his living in this branch of veterinary work unless he has in a large measure the special qualifications I have mentioned.

GOVERNMENT AND PRIVATE PRACTICE IN AUSTRALIA.

By Lt.-Col. WAKEFIELD RAINEY, O.B.E., F.R.C.V.S.

THE following observations are necessarily superficial, because both Australia and its veterinary problems are far too big to be observed fully by a visitor in a few months or described adequately in a few words. The outstanding fact of veterinary service in Australia is the paucity of scientifically trained men in relation to the space to be covered and the work to be done.

For instance, one finds both in Queensland and Western Australia areas of pastoral and agricultural land nearly as large as the whole of England without a single resident qualified practitioner. The holdings are too far apart, the communications too bad, the holders too poor, and the value of the livestock too small to afford a suitable living for a whole-time professional man in private practice.

Partly as a consequence and partly as a result of this paucity, Australia swarms with whole- or part-time quacks.

There are more empiricists calling themselves veterinary surgeons in Australia than in any other division of the English-speaking world. There is, I believe, a Veterinary Surgeon's Act on the statute books of all the States, except South Australia, but that does not mean very much in a country where the ideal must so generally bow to the expedient. In Australia laws are passed with alacrity and executed with reluctance, and the Veterinary Surgeons' Act is no exception.

The veterinary needs, real or imaginary, of this vast country must somehow be met; Bill Snooks, the quack, and his family must live, and where there is no scientifically trained man available, leave has to be given to an empiricist to call himself a veterinarian and to practise. The paradoxical effect of this unavoidable laxity in the execution of the law is that there are so many quacks that when

a qualified man is available he can hardly earn a living in private practice without Governmental help, except in the large cities. Thus there exists a vicious circle which only time, active State help and a plentiful supply of trained veterinary graduates can break down. Many of the progressive pastoralists are anxious for reform.

At a small informal conference of dairy farmers that I attended in one district it was urged that skilled assistance was sorely needed to deal with such matters as the treatment of sterility, but it was admitted that while so many people would employ quacks a qualified man could not live in that part of the country, where the high cost of transportation to distant farms prohibited competition with the quack on the spot. It is the old story of a few intelligent people being unable to make headway against the inertia of an ignorant majority unable to understand that nature unaided is better than untrained interference.

Each State in Australia has its own veterinary service, and the richer or more extravagant State gets the larger share of the available qualified men by the simple expedient of offering them more money. Queensland, for instance, pays highly, and has depleted some of the less lavish Governments. The deficiency in qualified men is made good as far as possible by the employment of lay stock inspectors. Some of these men, from long local experience and intelligent study of official instructions, are able to be of considerable service to the community in many veterinary ways. I spent a considerable time going about with one stock inspector in Queensland and found him equal to most of the local emergencies. The States that seemed to have the most quacks were Western and South Australia, and it was in the former that one found the demand for qualified men the most urgent.

For an illustration of the ludicrously low ethical standard of veterinary practice in Australia, the visitor should go to the leading farming town in Western Australia, about eighty miles from Perth. Here the local " practitioner" has decorated his residence in the main street with a row of imitation human skulls, whitened and gilded, each on a pedestal bearing such inscriptions as " disease " " infection," " sepsis," " death," and " neglect." By these means the potential client is at once attracted and made to realise the possible consequences of failing to enlist the mystic services of the inspired guardian of these grisly emblems of mortality ! In addition to stock inspectors, some States, especially Western Australia, make considerable use of the Government Dairy Inspectors in lieu of veterinarians. These men receive as part of their normal training some instruction in the common ailments of cows and in minor surgery, and I saw nothing in Australia that made me more anxious about the future of the veterinary profession than the increasing use of this class of official for veterinary purposes. The dairy inspector is, indeed, a far greater threat to the employment of veterinarians than the stock inspector can ever be, because the former often has a Bachelor of Science degree and brings a trained intelligence to bear on a duty for which he is responsible, not to a veterinary, but to an agricultural chief. Thus the agricul-

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tural chief of the State tends to rely more and more on these inspectors for general veterinary practice and to restrict the rôle of the veterinarian to that of a research specialist, of which very few are needed.

Dairy inspectors receive, I believe, about £350 a year, and are thus much cheaper than veterinarians, besides being able to fill a dual rôle. I discussed this matter at some length with the head of the Dairy Department in Western Australia and found him disposed soundly to support the policy of preferring the services of his dairy inspectors for cow practice to those of the more expensive and less practical type of veterinarian such as one often finds in official employment in Australia and elsewhere. *He pointed out with truth that it was a waste of time and money to employ highly-trained veterinarians who had specialised in bacteriology or parasitology on the homely duties of parturition or the common ailments of farm stock. He suggested with equal truth that such specialists in many instances lacked the aptitude or even the liking for such practical work. He alleged, not without justice, that we had brought this trouble on ourselves by wishing to exchange agriculture and the common things of the farm as the basis of veterinary medicine for the laboratory.*

I love my calling too well to do it the disservice of disputing these truths, which must be met in some other way than by futile denial, but it was, and is, with a heavy heart that I heard them and now record them. Our illusory alliance with human medicine has helped to bring us to this pass, out of which a way must be found by giving equal attention and equal importance to the training and production of two distinct classes of veterinarians. Our highly-trained bacteriologist, the spear-head of one form of research, must, of course, remain, but we must produce a less highly-paid type of practical veterinarian as well able to fill a dual rôle in aid of the farmer as the dairy inspector. It is only by a much closer liaison in research with the agriculturist that we shall be able to make up our lost ground.

While we have largely failed to invent cures for disease, we have left it to agricultural research to discover the improved systems of feeding and animal management that are necessary to prevent disease from occurring. The large numbers of pharmaceutical chemists that are found in rural Australia take a big share of the animal quackery swag. One sees sensational advertisements in the windows of chemists' shops in country towns asking farmers why they tolerate mammitis or some other disease in the herds when they can stamp it out in no time with Bug's Vaccine—the scientific wonder of the age. Elsewhere the farmer is told that a qualified veterinarian is to be found on the premises at stated hours; the truth being that the proprietor or some member of his staff has taken a correspondence course from some American college of veterinary quackery. Patent medicines are sold on a great scale and medicines of all sorts at a great price. I paid, anonymously, 4*s*. 6*d*. for a ten-ounce bottle of calamine lotion in a rural Queensland town.

Why does not Australia make up its deficiency in qualified veterinarians by asking the Old Country to send out men to fill Government appointments?

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Australian States cannot all afford to pay or to subsidise all the veterinary surgeons that are needed, but there is not the slightest doubt that when an adequate supply of Australian qualified veterinarians is available, means will be found either from State or Federal funds greatly to increase the existing numbers of State veterinarians and to do away with the quacks. One gained the impression that Australia would not wish to take this big step on a basis of imported veterinarians trained in the British veterinary schools. Local patriotism would hardly agree to the displacement of all Australian quacks by " Pommy " veterinarians ; though there would be no objection to the displacement by good Australian graduates.

This impression may not be correct, but it would be difficult to explain in any other way the reluctance of the States to ask Britain for graduates when the need for qualified men is so freely admitted. Personally, I do not blame Australia for thus hesitating, because she is well on the way to training a lot of young men in good schools and versed in all the local lore, and it would not be well for these new graduates to find all the good billets filled by men from the old country. Many people will know that veterinary education in Australia was formerly undertaken in Melbourne, but is now centred in Sydney.

The Sydney school—that of the University of New South Wales—is the only one now turning out graduates, but during the past year a veterinary Faculty has been formed in the Queensland University under Mr. Seddon, a distinguished New Zealander who won his veterinary spurs at Melbourne. It must, of course, be some time yet before his graduates begin to emerge from the academic nest. One has to admit that for Australian purposes the facilities enjoyed by both Sydney and Brisbane are in some important respects better than those of our schools in the British Isles. Both schools, for instance, now have large experimental farms at their disposal for tuitional and research purposes, and that is no small advantage to the man on the spot. And these facilities, be it noted, are only an earnest of what may be added by appreciative Governments in a country that is far more interested in these matters than the Old Country is.

Another important respect in which veterinary education in Australia, both of the public and of the student, has the advantage of Britain is the immense help given by the lay press. The press in Australia, as in New Zealand and South Africa, devotes a regular and a generous amount of its space to the problems of the man on the land. In Britain it is hard for the veterinarian or the farmer with something to say to get a hearing in the lay press, but in the Dominions they welcome him. Such journals as the *Sydney Bulletin*, the *Brisbane Courier Mail*, and the *West Australian*, as well as the *Australasian* and the *Pastoralist's Review*, would suffice, if read regularly, to educate the mind in that aspect of biology which is indispensable to a proper understanding of the interdependence of veterinary and agricultural problems. There is little doubt that many a veterinary student in Australia reads the section in the *Sydney Bulletin* entitled " The Man of the Land " every week, and there is no doubt at all that he thus learns a lot

that no British student can learn, from the shrewd practical observations he finds therein. I learned a lot from the *Bulletin*. The *Sydney Bulletin* is the staunch friend of veterinary science, and this is well, because the *Bulletin* is the voice of young Australia, and a power in the land.

One need not go far in Australia to find instances of the insufficiency of skilled veterinary attention or of the lack of recognition of the fact that the domesticated animals are entitled to protection in this respect. In Adelaide, the capital city of South Australia, I systematically observed the incidence of lameness and neglect among the many horses used for commercial purposes, and found that over 25 per cent. were obviously lame ; some were very lame. My examination included over 200 horses on two separate days, and I do not believe that any element of chance affected these figures, but that they did, in fact, represent the incidence of lameness in Adelaide at the time of my visit in April, 1936.

If I were a young man and wished to practise as a veterinarian in the free and wholesome environment of Australia, none of the difficulties I have outlined would deter me, though it would be necessary to go to one of the cities to earn a good living. Adelaide at the present time could find employment for a scientifically-trained graduate interested in canine work, and if a young man had grit he could accept one of the rather pathetic invitations one sometimes sees in an Australian newspaper from a farmers' association asking for a veterinarian to settle in their district. They would not let a good man starve.

I hope that the Editor will allow me to conclude this brief sketch with a reference to three veterinarians whose importance in an educational respect in that country most impressed me.

The first was that veteran, the late Professor Dr. J. A. Gilruth, to whose wisdom, experience and character many a young Australian graduate is indebted. It is more than forty years since Gilruth left Scotland to help to lay the foundation of veterinary science in Australia, and he filled many rôles in the public service, but his influence on veterinary thought in Australia is still great. Like many other veterinarians whose strength is that of a naturalist rather than a specialist, Gilruth was something of a reactionary against the excessive claims of therapeutics in relation to many of the common diseases of stock. Only during the past year an exceedingly thoughtful article from him appeared in the *Pastoralist's Review*, in which he pointed out how far more important were feeding and environment generally than chemotherapy, in the prevention and control of parasitic diseases of sheep. Wise old men like Gilruth are always necessary to temper the enthusiasm of inexperienced youth.

My next exhibit is a modern of the moderns, Clunies Ross, the erudite and altogether charming academician in charge of the McMaster Research Laboratory attached to the Veterinary School at Sydney. One could not wish a better thing for Sydney than that it should long retain the services of this remarkable young veterinarian whose influence on the present generation of Australian students should be considerable.

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The remaining member of the trio is Colonel Max Henry, who is the Chief Veterinary Officer in the New South Wales Government. Max Henry is the veterinary oracle of Australia. Hardly a week, and never a month, passes that one does not read in the Australian lay press some interesting and altogether sound statement by Max Henry on some veterinary or pastoral matter. Max Henry is the best advertisement for veterinary science in Australasia, and the amazing thing is that he should say so much and err so little.

While Australia has men like these its veterinary education cannot go far wrong, and the British Schools will have their work cut out to produce graduates better informed and more useful to the Australian community than the young Australians who make these men their models.

THE DUTIES OF A VETERINARY SURGEON IN A BRITISH BACON FACTORY.

By D. J. ANTHONY M.R.C.V.S., D.V.S.M.

Chief Veterinary Officer to Messrs. Marsh and Baxter, Brierley Hill.

It is with meat inspection that a veterinary surgeon employed at a bacon factory is primarily concerned. In England and Wales the responsibility for the inspection of meat under the Public Health (Meat) Regulations, 1924, rests upon the local authorities. In those areas where bacon factories are situated the local authorities should provide the veterinary officers to carry out such work. There are very few large factories in this country with a killing capacity sufficient to justify the employment of one or more veterinary surgeons in a whole-time capacity. Where such factories carry out an export trade, it is essential that veterinary surgeons should be employed if only in order to comply with the requirements of foreign Governments as to the certification of exported meat products. As we in this country insist that all imported meat and meat products should satisfy public health requirements, so do foreign and Dominion Governments insist upon a similar standard for our products. Owing to the fact that there is no *national* system of inspection in Great Britain, but that the matter is left to local authorities, some Dominion Governments have refused to allow English meat products entry into their countries.

As far as I am aware the duties of veterinary surgeons employed in English factories have never been properly defined, and although meat inspection is their chief concern, it is obvious that a person possessing a veterinary training must be very useful in a factory handling some hundreds of thousands of animals per annum.

Most veterinary meat inspectors work on the basis laid down in the 1922 Memorandum on Meat Inspection drawn up by a Committee appointed by the Minister of Health, and the method of carrying out the inspection will depend

largely upon the facilities at the factory, the killing capacity, and methods of dressing carcases. Most of the larger factories are " mass-producing " factories where pigs are slaughtered and dressed with a minimum of human handling. The number of inspectors will depend upon the numbers of conveyors in use, and it is customary in the larger factories for the factory owners to " lend " to the veterinary officers a number of specially trained workpeople to carry out the less important inspection on some of the conveyors. These people are usually trained by the veterinary officers, and as the work is purely repetition work, they soon become experts at their particular job. The large South American meat factories also have a similar system. The more important inspection and condemnation work is carried out by the veterinary surgeons, either on conveyors or, when carcases have come to rest in pre-cooling rooms, etc. This again will vary with the type of factory and methods of dressing carcases, so that it is difficult to lay down a hard-and-fast rule for all factories.

An important side of the veterinary surgeon's work is the keeping of accurate records of diseases encountered and meat condemned. This is important, especially since the introduction of the various pig and bacon marketing schemes, insurance schemes, etc. Reports may have to be submitted to the factory owners and local authority weekly, monthly, and annually, whilst Government departments may call for certain evidence as to the incidence of certain diseases in the pigs slaughtered at the factory. Certificates of condemnation must be made out for carcases, etc., and where heavy tuberculous infections are encountered the veterinary officer will find good results following from a report to the county veterinary officer of the county wherein the pigs were reared. For the purpose of these records it is essential that the veterinary officer should devise a method whereby he can easily identify all offal, where such offal when removed from a carcase is placed upon a separate conveyor. Where large numbers of pigs are slaughtered daily at high speed, it is not so easy to devise such a method.

Records should be kept of all animals arriving dead in transit, and a careful post-mortem examination made in each case. The same applies to animals dying whilst resting in lairages. Lairages must be inspected and cases of swine fever, etc., duly isolated and reported to the proper authorities. An emergency slaughterhouse should be attached to each factory away from the main factory abattoir.

Some of the larger bacon factories are in reality meat factories, as sheep and cattle are also slaughtered, and this again complicates the veterinary surgeon's duties. Breeding and fattening farms may also be attached to such a factory, and the veterinary surgeon will be expected to keep an eye on such places and deal promptly with any disease outbreaks thereon. Apart from his routine duties, the veterinary officer will be wise to make good use of his microscope, and to collaborate with research workers at various centres by submitting material for research upon some obscure problem he encounters in his day's work. He will often be called upon to provide material to various research institutions, both

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medical, dental and veterinary, and this is not the least interesting part of his work. He will have to make himself familiar with all the manufacturing processes going on in the factory, and should be capable of conducting a party round the factory and explaining each process, even that of preparing pigs' bristles for the brush manufacturer or motor car factory. He will be consulted upon various problems arising out of the manufacturing processes, *e.g.*, bone taint, mould on pies, greyness in sausage, and will do well to work in close co-operation with the works chemists, and to keep himself informed of all new developments. The veterinary officer in his spare time may be asked to draw up and supervise courses of instruction for Government departments, to take charge of and lecture to apprentices and students at butchers' classes, and generally to act as unofficial adviser and schoolmaster to the factory in general. I also ought to mention that he will be consulted upon all sorts of ailments, human and animal, by most of the workpeople at some time or other, and during the absence of the factory nurse may be called upon to render first aid to injured workers.

I almost forgot to mention that most of such factories work from 6 a.m. to about 5 p.m. The veterinary staff arrange their hours according to the daily "output" of the factory. Once a week the veterinary surgeon will receive a copy of his weekly professional paper, and will then suddenly recollect that he is after all a veterinary surgeon whose training has been towards the healing of animal diseases and the saving of animal life. He will think of the weekly killings he has supervised, and wonder!

VETERINARY EDUCATION IN CANADA.

By THOMAS W. M. CAMERON, T.D., M.A., Ph.D., D.Sc., M.R.C.V.S.
Research Professor, McGill University, Montreal; and Director, Institute of Parasitology, Macdonald College, P.Q., Canada.

To appreciate the position of veterinary education in Canada it is necessary to understand the physical conditions of the country. It has an area of some three and a-quarter million square miles—only a little less than the whole of Europe. It was inevitable, both from historical and geographical associations, that the present provincial system should develop, that veterinary surgeons in each province should join to form local associations, and that in time each of these should become local licensing bodies. In this respect it closely followed the practice of human medicine.

The medical profession in Canada is organised on what is essentially a provincial basis. A University degree in medicine does not of itself confer the right to practise. Each province has a licensing body of its own with its special laws and requirements; and in many a special standard of general education is insisted upon *before* beginning the study of medicine, and a student must therefore, of necessity, register in such a province five years before a licence to practise is granted. However, the Medical Council of Canada conducts an examination

which is accepted by all the provinces; this examination is supplementary to the University degree examinations. The Medical Council will, however, accept certificates from the Registrar of a Provincial Medical Board that a candidate holds qualifications accepted and approved of by the Medical Board of that province. Some provinces have, in addition, a reciprocal agreement with Great Britain.

The veterinary system is purely provincial. Each province has its own veterinary society, membership of which is essential before a licence to practise is granted. This membership may be the result of special examination or of the acceptance of a recognised veterinary qualification. But the acceptance of a candidate and the payment of an annual fee is a *sine qua non* to practise. Candidates for positions in the Federal Service must also undergo a special examination before admission. This examination is conducted by the Civil Service Commissioners.

Canada, of course, has two official languages—French and English. The French-speaking Canadians, although they may be found in any part of the Dominion, are largely confined to Quebec; they constitute about a fifth of the whole population. There is a School of Veterinary Medicine giving instruction in each language.

The French-speaking Veterinary College is now situated at Oka on the Lake of Two Mountains in the Province of Quebec, about thirty miles from Montreal. Founded in 1886 by Dr. F. T. Doubigny, who had for several years been associated with the French department of the McGill College, the School was affiliated with l'Université Laval in 1890. In 1928 it was transferred to its present site and is now a school of l'Université de Montréal, and maintained by the Province of Quebec. (It should be noted that the University of Montreal is not the same as McGill University, although they are both situated in the same city; the former is French-speaking, while the latter is English-speaking.)

It offers a four-year course in Veterinary Medicine, leading to the degree of "Docteur en Médecine Vétérinaire."

Before being admitted to the School candidates must satisfy the "Collège des Médecins Vétérinaires de la Province de Québec"—the provincial licensing body—that their preliminary education is sufficiently good. Candidates must be at least eighteen years old when they sit for this examination, which includes French, mathematics, history, geography, English and physics.

The professional training follows the usual course. Each year is divided into two terms of sixteen weeks each, and the examination at the end of each session is taken under the direction of the professors, two delegates of the Veterinary College, and one each of the Ministers of Agriculture of Canada and of Quebec, who act as assessors. All examinations are oral as well as written, and are repeated in the autumn for students who fail to make the grade. Students of the final year, failing to satisfy the examiners in one or more subjects in spring or in autumn, must repeat the whole of the final year.

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The school is supported by the Province, which allows each student $9.00 per month in part payment of his fees. The student must pay the remainder himself, amounting to $90.00 yearly if resident in the Province, $130 if from another province, and $172.00 if from outside the Dominion. The College is residential and these fees include board and lodging.

The only English-speaking College in Canada is the Ontario Veterinary College at Guelph, in the Province of Ontario, about forty-eight miles from the city of Toronto, and affiliated with the University of Toronto. It was established in 1864 by Andrew Smith, F.R.C.V.S., a graduate of the Dick Veterinary College, as a private school in Toronto, but was moved to its present site in 1922 ; in 1908, however, the Charter was acquired by the Provincial Government. The course is a four-year one, leading to the degree of Bachelor of Veterinary Science (B.V.Sc.). The entrance requirements consist of the Pass Matriculation Certificate of Ontario, or its equivalent in any part of the British Empire or the United States. Professional examinations for the first three years are conducted by the College, but those for the final year are conducted by examiners appointed by and under regulations approved by the Senate. Each year's instruction lasts from the 1st of October until the end of April, and a minimum of five months' practice under a qualified veterinary preceptor is compulsory before graduation. The degree is not granted to students under twenty-one years of age.

The tuition fees are $90.00 per year. The College is not residential, and board and lodging usually costs from $6.50 a week upwards. The degree is accepted by the Ontario Veterinary Association as qualifying for practice in that Province. This College supplies most of the English-speaking veterinarians in Canada as well as a considerable proportion in the United States. Its graduates are well known in other parts of the world as well, and include in their number some of the best-known members of the profession. It has about 250 students at the present time.

Toronto University offers two advanced degrees in veterinary medicine—" Master " and " Doctor." The M.V.Sc. requires two years' advanced study and research, one at least of which must be spent in residence, and requires both a written examination and a thesis. The D.V.Sc. requires either three years' residence (the first of which must be spent in Toronto) or independent study for not less than six years after graduation ; normally a thesis alone is required for this degree, but an examination may be demanded if necessary. Candidates taking the doctorate after independent study must be graduates of the Ontario Veterinary College, but in the other cases an equivalent qualification may be accepted.

The McGill Veterinary College is no longer in existence. The school was founded in 1866 by Duncan McNab McEachran, of Campbelltown, Scotland, a graduate of the Dick College. In 1889 it became a faculty of McGill University, Montreal, under the name of the Faculty of Comparative Medicine and Veterinary Science ; but in 1903, owing to lack of financial support, it closed down. During

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its lifetime, however, the College produced many outstanding graduates, including Wallis Hoare, Seymour Hadwen, W. L. Williams, of Cornell, and W. R. Blair, of the New York Zoological Gardens, to mention but a few well known in England. The College demanded an entrance examination and gave a three years' course of instruction when all other colleges in America gave only two years with no entrance requirements. It numbered among its most distinguished teachers many of the medical professors of McGill, including the great Osler himself. Sir William Osler not only proposed the name which the Faculty came to bear, but took an active part in veterinary affairs, publishing over thirty papers on this subject. He was Professor of the Institutes of Medicine or Pathology and Physiology in the College, and for many years was a Vice-President of the Montreal Veterinary Association. The Animal Diseases Research Laboratory of the Dominion Government at Hull, of which Dr. Watson is the present Director, owes its origin to Osler, and in 1907, impressed with the need for research in the subject, long before our own profession realised its importance, he stressed the need for the creation of the present Institute of Parasitology. Veterinary science in general owes a very great debt to this greatest of modern physicians, who was also the Father of Comparative Pathology.

McEachran's school was unique in other ways also. It had a French-speaking section as well as an English-speaking one, and it worked in the closest association with human medicine. While it is true that much of the work of the veterinary surgeon must be carried out in conjunction with agriculture, it is generally agreed that his training should have the closest association with human medicine, and if McEachran's ideas had been carried out by other Colleges—not only in Canada—nothing but good would have resulted from them. The demise of the McGill College is probably due to the fact that it set too high a standard for the times; and as McGill is a privately endowed university, unlike the others it had no provincial backing.

Canada has a well-organised and efficient Federal Veterinary Service which has resulted in a very great freedom from animal diseases. This service not only controls the contagious diseases of animals, but inspects tinned goods and conducts investigations in its well-known laboratory at Hull, P.Q. There is, however, a dearth of private practitioners, due, at least in part, to the vast extent of the country and its comparatively scattered population. Just how this situation can be remedied is not clear, but there is a general agreement that the situation is unsatisfactory.

Few persons have any idea of the numbers of stock in Canada. There are some three million horses, *i.e.*, about twice the number present in the British Isles. There are nearly nine million head of cattle: about three-quarters of the number in the British Isles or Australia, more than twice as many as in New Zealand, and only a million less than in South Africa. There are over four million pigs: about the same number as found in the British Isles, four times as many as in Australia or South Africa, and eight times as many as in New Zealand.

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There are, however, under four million sheep ; and in this respect, the Canadian figure is much lower than that of any of the other countries in the Empire. Excluding dogs and cats, no figures for which are available, there are some twenty million domestic mammals (including about a quarter of a million fur-bearers), and sixty million domestic birds in the country.

The profession has evolved here along lines somewhat similar to those seen in Britain. A uniform standard for registration throughout the Dominion seems essential, and complete provincial reciprocity is highly desirable. The two existing Colleges were established primarily to serve two Provinces only, and practitioners in all the others must graduate from one of these, or from outside of Canada. The result is that the profession as a whole has little or no influence on the length of the course or the subjects taught. Accordingly a Canadian Veterinary Association and a Dominion College, teaching both in English and French, is a logical necessity, and this College should have the closest contacts not only with a University, but with a strong Faculty of human medicine. A contact with agriculture is also desirable, but this should be secondary to the medical one. Too often in the past, and not only in Canada, the reverse has been the case, with the result that the progress of the veterinary profession as a whole has not been as rapid as it should have been.

With this hope I would associate the ideal of Empire reciprocity, when a uniform standard would be required by all veterinary colleges in Britain and the Dominions, and when any graduate would be qualified to practise in any part of the British Commonwealth without further study or examination. This may be an ideal at present, but there is already a large body of professional opinion in favour of it, and it is hoped that it may be realised in the not too distant future. It would lead not only to an improvement in veterinary education everywhere, but would greatly enhance the power and prestige of the profession in the British Empire and, indeed, in the eyes of the whole world.

THE VETERINARY SURGEON AND MILK PRODUCTION.

By G. MAYALL, M.R.C.V.S.

It was in September, 1909, that the first edition of my book " Cows, Cow-houses and Milk " appeared. The little work was favourably reviewed in several quarters, and since that date marked improvement has taken place in many cow-houses and cowsheds in the country, and the good work is still going on. The book had a satisfactory circulation, and has gone into two editions and a reprint, and I believe it has been a definite factor in benefiting cow-owners, the cows themselves, and in increasing milk production. At the time I wrote it I had been about in many of the counties in England, and in some in Scotland, and I was struck with the bad and indifferent way in which

many bovines were housed. At the same time I began to realise that the tendency would be that horses would decrease in numbers and that our future field of usefulness as a profession would largely rest with cattle. The literary field here, as far as the care and management of dairy cows in this country were concerned, was singularly sparse and uncultivated; and whereas other countries such as Germany, Holland and America had devoted much educational instruction and not a few books to this matter, we had a good deal of leeway to make up. I was therefore determined to do what I could in the case and to endeavour to fill up the breach and gap.

In any attempt to produce and increase a plentiful supply of clean, pure milk, several cardinal points must be considered. One of the most important initial ones is to secure the good will of the farmer, cow-keeper and dairyman. Without their co-operation and appreciation we shall not advance very far, and may soon be pulled up by a blank wall. The amount of educational good we can do, even in quarterly inspections of dairy cattle, is by no means small. When I was at college a certain professor often dwelt on the importance of a veterinary surgeon exercising his powers of observation; in fact, he said: "Your living will often depend on the acuteness and depth of this faculty." These were wise words.

When entering a cow-house and glancing at the cows one can often see objectionable sights which the owner, too, has often seen, but made no attempt to remedy. By kindly advice in a tactful way one can often gain on future visits the gradual or sudden elimination of these faults. I often tell my clients a little tale in connection with this matter. A certain father nursing his daughter on his knee told her that she had just got another little brother and asked her if she was not pleased at the fact. She said: "Yes, Daddy, I am very pleased; and would you mind if I wrote to brother Tommy at school and told him." The father wondered somewhat at this, but said: "Oh, yes, do." Seeing her open letter later on the table, he read: "Dear Tom, it came off last night; you've lost—it's a boy." This little lady had used her powers of observation, and had noted the satisfactory result. It is no use noticing things unless you get some satisfactory result from your observation. The things I observe are chiefly scurvy skins, injured teats not treated, dirty tails, vaginal discharges and soiled hind parts, and warts on the teats, and occasionally ringworm. When first I started periodical inspection some eight years ago all these faults were often noticed, but now they are chiefly conspicuous by their absence. Here a little education and tact have benefited both the cow-owner and his charges. Another way in which the condition of the cows and an increased milk supply were improved was by calling attention to the lean and poor state of some of the occupants of the byre. It is known that cows insufficiently or improperly fed do not give their maximum quantity of milk, and by advising supplemental rations where the whole herd shows signs of underfeeding much satisfaction can be produced both to the cow-keeper and the veterinary surgeon. Of course, the prices of available food and the purses of the cow-keepers have to

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be considered, but one can generally get an improvement in this matter by proper and appropriate advice. The amount of water a cow drinks also has an effect on the milk supply.

Daily Consumption of Water.—" On a three-days' trial sixteen cows in milk drank 4.38 pounds of water for each pound of milk given. The maximum daily amount was 233¾ lb. for a Holstein producing 45 lb. of milk daily. The minimum was 18 lb. for a dry Ayrshire." (From *Technical Bulletin No.* 35, New Hampshire Agricultural Experiment Station, by J. M. Fuller, Durham, N.H. —*Veterinary Medicine*, February, 1929.)

The comfort and cleanliness of the cows and access to water depend upon the modern fitting up of the cowhouse and allotment of defined floor space and light, and these attended to, milk supply and the health of the cattle will benefit. In many parts of the country there is still a lamentable lack of loose boxes for calving and ailing cows, but we think more attention is gradually being given to this matter. At any rate in our own circle we have managed to get some improvement. Good and satisfactory hygiene can never be produced where cows calve in the byre.

We think that the best routine examiners of cows are those who have spent a few years in general practice, know a good dairy cow when they see one, and have a knowledge of conformation and style. In general inspection one comes across all sorts of crossbred cows, and a few words of advice to stress the importance of good dairy stock will not be wasted even on the man who is less blessed with spare money than his more opulent neighbour.

Wherever a number of unequal quarters are seen in a herd without any actual disease being present, it is always wise to nudge the proprietor's memory as to a more strict supervision of stripping out among the milkers.

The most dangerous milk is pathological milk: tuberculosis, mammitis (streptococci and staphylococci, pyogenic bacillosis, coli and aerogenes mastitis), salmonellosis or enteritidis, necrobacillosis of the udder, inflammatory diseases of the skin of the udder, anthrax, foot-and-mouth, and cow pox, and infectious abortion, all come under consideration in milk control.

In order to control milk and produce a plentiful supply:

The Control of the animals must ensure that they are in good health. In this connection there is no doubt that modern improvements obtained in cowhouses have had good effects in improving bovine health. Illness causes a modification in the composition of the milk, and often causes diminution of the lacteal secretion. Milk may be contaminated by microbian flora, which abound in vaginitis, metritis, and mammitis—often met with in the cow. Furunculosis of the udder, too, is occasionally encountered, and the germs escaping from the boils may contaminate the milk.

A sufficient nourishment, both qualitatively and quantitatively, should be given to the cows. Thin and poor cows sometimes met with may be improved by the addition of bean or pea meal to the ration.

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Good hygiene and clean cows ought not to be vain words. The state of health of the cows, a judicious choice of good dairy cows, the principles of rational feeding and summary rules of hygiene should all come under the care of the veterinary officer.

The suitability of cow-houses needs supervision.—Narrow, dark and low byres must be inveighed against. Only those up against these structures know the difficulty of getting them remedied. Cow-houses should be clean and well aerated, and cows breathing easily. Temperature of cow-house about 64° to 68° F. Daylight should penetrate easily. Walls and floor be made of impermeable material. Stalls should slant to the rear so that urine can flow away in properly constructed channels. Litter should be renewed daily and the animals always kept clean.

The attendants should be clean and healthy.—The milkers should be in good health and clean in their persons and habits, and should keep the milking-stools clean. A periodical medical examination of the milkers is indicated, but seldom undertaken. Hands should be washed frequently, and the udder and teats made clean before milking. The milk should be received into partially covered cans made scrupulously clean before use.

As regards the control of milk.—Milk delivered for consumption should be normal The cleanliness of the milk may be tested by filtration through cotton wool discs, and there are some useful filters on the market.

Chemical and bacteriological examinations should also be conducted to ascertain good, average, or bad quality milk. In our opinion such examinations are best conducted in laboratories, where time and trouble are specially devoted to this work and where the equipment for the processes required is modern and up-to-date. Good clean milk production is really a matter of team work between the milk producer, milkers, veterinary surgeons, sanitary inspectors, and laboratory workers (chemical and bacteriological).

LITERATURE.

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"Rôle du Vétérinaire dans le Contrôle Hygienique du Lait," by G. Belle, Dr. and Veterinary Inspector, Research Laboratory, Casablanca.—*Revue Vétérinaire*, September, 1933.

POULTRY PRACTICE FOR VETERINARY SURGEONS.

By H. P. HAMILTON, B.V.Sc. (*Toronto*)

Director of the Poultry Pathological Research Laboratory ,Goring, Reading.

THE advantage of a veterinary student taking an active interest in the diseases of poultry when undergoing his or her training may be summarised by the following figures: number of poultry keepers in England, Wales and Scotland, approximately 500,000; number of poultry on farms approximately 40,000,000; annual loss from disease is assessed at about £4,000,000.

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It is clear therefore that there is a great opportunity for veterinary surgeons specialising in poultry practice. Such practice naturally falls into two categories :

(1) *Laboratory Work.*—Poultry diseases cannot in the main be diagnosed without laboratory examinations of tissues. These examinations consist of histological, bacteriological and chemical, and offer very good prospects for laboratory-minded people, especially lady students.

(2) *Field Work.*—This branch has, unquestionably, been neglected. Like any other branch of field work, the practitioner is expected to know a good deal about animal husbandry, and to be able to talk with considerable intelligence concerning practical matters. Veterinary surgeons in the course of their training are able to obtain extensive knowledge regarding the husbandry of a large and small animal, but I venture to suggest that very few are able to discuss with a poultry farmer the intricacies of his daily work. It is here that education, *on a poultry farm*, is of such vital importance if the would-be veterinary surgeon contemplates setting up in poultry practice.

It is quite clear that there must be a close co-operation between laboratory and field work in every branch of veterinary work, and I think that this is even more necessary in the case of the poultry practitioner than in the case of the man or woman in general practice.

At all veterinary colleges poultry diseases should be included in the curriculum. When I was at Camden Town there were no such courses, with the result that the average student knew nothing about the subject except for a few lectures in bacteriology dealing with the more common bacteria of fowls. I think that any student who contemplates specialising in poultry diseases (and what a field there is) should spend a certain time in the vacations on a poultry farm and in a laboratory specialising in disease diagnosis, carrying out the routine work with the staff. In this way, and in this way only, can the various conditions be appreciated and the value of therapeutic and prophylactic measures be assessed. If a fully-qualified practitioner concentrating on poultry work were to put up his or her plate in an area heavily stocked with poultry, the good news would soon be spread and there would be plenty of work to do.

I have endeavoured in this short note to combine poultry veterinary education with the prospects likely to be expected, but an outline of a suggested course of study would not be out of place.

Anatomy.—A thorough knowledge of the anatomy is essential, especially in so far as the respiratory, genital and digestive systems are concerned. Comparative anatomy is also important, for variations occur in the fowl, duck, goose and turkey.

Physiology.—As undoubtedly the physiology of the bird differs widely from that of the mammal, especially in the digestive and respiratory systems, a thorough study should be made. The physiology of this species has received too little attention, and much more work is needed, especially in view of the fact that

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domestication has resulted in abnormal production when compared to the wild bird.

Pathology.—With the frequent occurrence of neoplasms a student should be conversant with the more common conditions, such as carcinomata, sarcomata and lymphomata. Here it is that the normal histology must be thoroughly grasped and understood, pathological sections being compared with the normal. Cellular infiltrations into structures such as nerve and muscle tissue should be noted, as both these conditions are commonly found in poultry practice. The leucoses should also receive considerable attention.

Bacteriology and Protozoology.—Knowledge should be specialised in connection with the morphology, cultural characteristics and pathogenicity of the more common bacteria, viruses and protozoa found in poultry. Among the specific bacteria should be included those in the Salmonella group, especially *S. pullorum* and *S. aertrycke*, *Eberthella sanguinaria* (fowl typhoid), *Pasteurella avisepticus* (fowl cholera), and *Mycobacterium tubercle* (tuberculosis). Of the viruses, those associated with fowl-pox and laryngo-tracheitis should receive attention. The chief protozoon affecting poultry is the coccidium, and the various types should be noted. A thorough knowledge of the scientific and *practical* application of the blood agglutination tests should be obtained. The various methods of carrying out these tests in the laboratory and in the field should be studied with considerable care. Knowledge of the practical application of the tuberculin test should be acquired.

Field Operations.—Many poultry farmers are quite capable of performing minor operations, such as incising and emptying the crop, but assistance is constantly asked in carrying out operations for the removal of tumours or " dubbing." These operations are best carried out under laboratory conditions and not on the farm. Practitioners are not commonly called upon to bleed birds for the agglutination test, or to vaccinate stock against fowl-pox or fowl typhoid, but application for the services of a qualified practitioner is often made for the purpose of giving intravenous injections for the prophylactic treatment of entero-hepatitis.

Post-mortem Examinations.—A student should develop a regular and systematic technique in carrying out this important work. Post-mortem examinations are often carried out on the farm visited, and the use of a portable microscope is of considerable value for the detection of protozoa and eggs of the commoner helminths. Bottles of preservative should be carried for the collection of tissues requiring further work.

General.—Hygiene and farm management enter largely into the purview of the veterinary surgeon in general practice, and in poultry practice these two important items are of equal significance. Here it is that experience on a farm is so necessary. The writer has visited many hundreds of poultry farms in all parts of the country, and on no two farms are management items the same. Hygiene, including ventilation of incubator room, arks and laying-houses, should

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be the subject of much instruction and practical experience. The writer wishes to stress (without implying any disrespect to veterinary practitioners) that poultry practice is highly specialised, and only those who have acquired the necessary specialised knowledge should contemplate engaging therein.

A student of poultry practice should be made to realise that the subject is receiving more and more research work as time goes on. One of the conditions to which research has turned its hand is in connection with lymphomatosis and allied conditions. This fact is mentioned as it should be clearly understood that there is an immense field for the student trained in poultry pathology in the realm of research. However, before a research student can consider himself or herself qualified to undertake this work, experience in the practical and routine laboratory work should be sought. Ample opportunity exists for this branch, and the writer would like to see at all the great research centres teams of workers, with adequate grounding, engaged on the solution of the various problems which confront the poultry keeper. The work is of extreme national importance in view of the figures quoted at the commencement of this note, but it should be stressed that only those who have obtained adequate training should embark thereon. Sound education in poultry pathology will reap its reward in the long run and be well worth while.

THE VETERINARY SURGEON AND THE MILK INDUSTRY.

By P. B. TUSTIN, F.R.San.I.

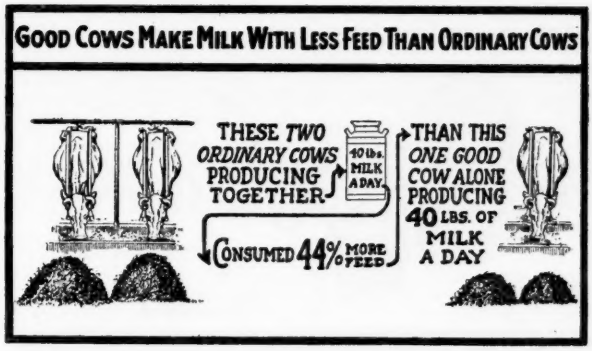
Late Chairman to the Milk Producers Committee and Milk Distributors Committee, Canadian Food Board.

THE modern veterinary surgeon in milk-producing areas has great opportunities of increasing his *clientèle* if, in addition to diagnosing and treating sick animals, he will advise his clients on proper breeding and feeding of milk-producing animals and in their selection and care. England is noted throughout the world for its magnificent dairy cattle of all breeds, but the percentage of farmers producing milk on a profitable basis is small compared to those who are just making both ends meet, while some are actually losing money owing to unscientific methods. Obviously the man who should be in a position to advise the milk producer is the veterinary surgeon.

Breeding for Production.—Professor Gillette, of the Ames College, Iowa, U.S.A., demonstrated in an experiment covering fifteen years, on three breeds of cattle—Jerseys, Guernsey and Friesian cattle, starting with scrub cows—that milk production could be increased 180 per cent. and butterfat 173 per cent., so well portrayed in the illustration, published by the Holstein Friesian Association of America. Similar results were obtained by the Jersey and Guernsey breeders. Illustrations also make clear the absurdity of wasting time and labour on

poor animals that do not pay for their feed and keep. By advocating the introduction of milk recording and the introduction of a good bull into the individual herd or society, the veterinary surgeon can do much to start the farmer, if in need of advice, on the right path.

Care of Newly-born Calves.—Great losses are taking place on many farms by killing off good calves from heavy milking cows, or by allowing them to practically shift for themselves. Human beings make their greatest gains in growth in the first years of their lives, and if not properly cared for and fed then, the physical effects are shown in malnutrition and arrested development. Much more so does it affect dairy calves, whose development is much more rapid. Calves intended to become milk producers should be kept in warm well-ventilated pens, free from


GOOD COWS MAKE MILK WITH LESS FEED THAN ORDINARY COWS
THESE TWO ORDINARY COWS PRODUCING TOGETHER
10 lbs. MILK A DAY
CONSUMED 44% MORE FEED
THAN THIS ONE GOOD COW ALONE PRODUCING 40 LBS. OF MILK A DAY

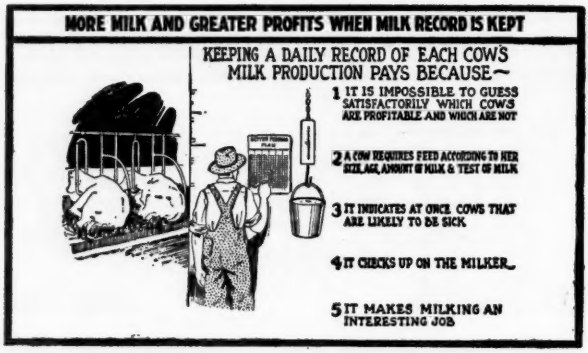
draughts during bad weather, and when removed from the mother fed adequate quantities of warm skim milk, and later hay and grain.

Feeding.—A cow requires feed according to her size as a maintenance ration, and a further amount according to her production and fat test. What these amounts should be can be ascertained by recording (*see* illustration). Recording also indicates which cows are likely to be sick; it checks upon the milker and makes milking a more interesting job. Poor feeding is a losing game for the farmer. You cannot get milk out of the cow unless the right type of food is put into the animal, any more than you can get steam out of a boiler without putting coal in. Clover, hay, silage, crushed oats, protein concentrate, and other farm-grown grains should be given to supplement bought feeds, and an adequate supply of pure water should always be available.

Production.—To produce clean milk is not an intricate scientific problem; expensive stables and equipment are not necessary. All that is required to be observed are the following points: (1) Milk with clean dry hands; (2) milk from a clean udder; (3) discard the foremilk from each teat; (4) remove milk from

cow at once to cooler ; (5) run cold water fast through cooler and milk slowly over ; (6) use small top pail ; (7) see that all utensils, pails, cooler, milking-stool are thoroughly clean and sterile.

Pasteurisation.—In America practically the whole veterinary profession is unanimous on the subject of pasteurisation. In spite of the fact that Minett and Pullinger, after an examination of sixty-five of the leading certified and Grade A.T.T. herds in the country, found that 73½ per cent. contained *Br. abortus*, 63½ per cent. hæmolytic mastitis streptococcus, there are still veterinary surgeons found who advocate the consumption of raw milk. The annual reports of the Ministry of Health since 1903 contain the following reports of milk-borne epidemics

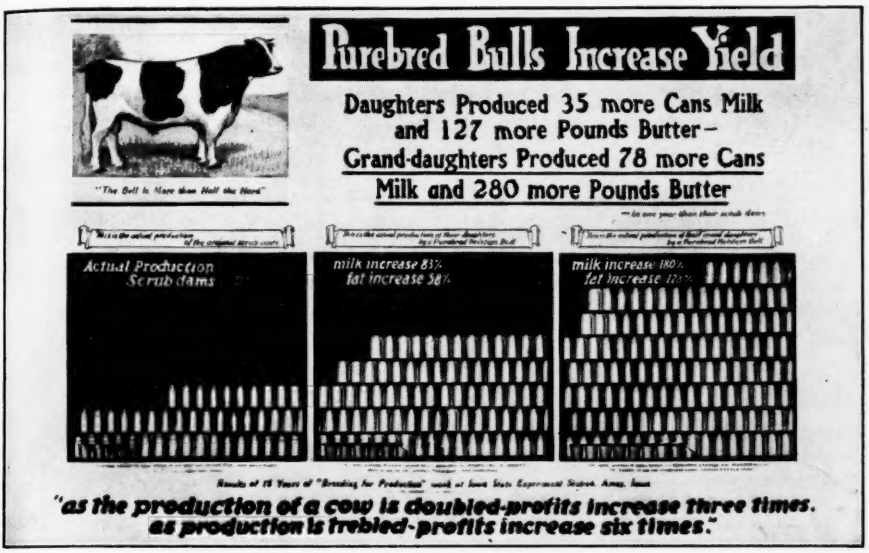

MORE MILK AND GREATER PROFITS WHEN MILK RECORD IS KEPT
KEEPING A DAILY RECORD OF EACH COWS MILK PRODUCTION PAYS BECAUSE—
1 IT IS IMPOSSIBLE TO GUESS SATISFACTORILY WHICH COWS ARE PROFITABLE AND WHICH ARE NOT
2 A COW REQUIRES FEED ACCORDING TO HER SIZE, AGE, AMOUNT OF MILK & TEST OF MILK
3 IT INDICATES AT ONCE COWS THAT ARE LIKELY TO BE SICK
4 IT CHECKS UP ON THE MILKER
5 IT MAKES MILKING AN INTERESTING JOB

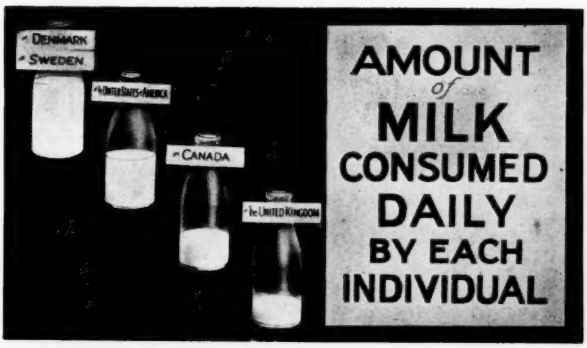
due to raw milk consumption, and the farms on which they occurred unfortunately were producing the highest grades of milk :

Year.	District.	Type.	Number of cases.	Deaths.
1929	Hove	Septic sore throat (streptococcal) ...	1200	65
1930	Hove	Scarlet fever	71	2
1930	Hove	Septic sore throat ...	100	—
1933	Epping	Paratyphoid	22	—
1935	Denham	Scarlet fever	90	2
1935	Chelmsford	Paratyphoid	1600	6
1936	Bournemouth... ...	Typhoid	500	47
1936	Doncaster	Scarlet fever	183	3

No reports of epidemics have been reported where milk is properly pasteurised.

The greatest market in the world is right here in this country for an increased consumption of milk. Every Government or other Commission dealing with


Purebred Bulls Increase Yield
Daughters Produced 35 more Cans Milk and 127 more Pounds Butter—
Grand-daughters Produced 78 more Cans Milk and 280 more Pounds Butter
"The Bull is More than Half the Herd"
Actual Production Scrub dams
milk increase 83%
fat increase 58%
"as the production of a cow is doubled-profits increase three times.
as production is trebled-profits increase six times."



(*Article by* P. B. Tustin, F.R.San.I., *page* 112)

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nutrition has cited milk as the most essential food. Why is not more of it consumed? Another illustration shows the *per capita* consumption. The reason for the low consumption *per capita* in this country is due to the fact that the medical profession dare not advocate it unless it is pasteurised. Read the following letter of Lord Dawson of Penn, Physician to the King, to the Editor of *The Times* of May 1st, 1934.

" Sir,—In your issue of March 6th you published a letter signed by Lord Moynihan, Lord Horder, Dr. Arkwright (Lister Institute), Sir Frederick Hobday (Royal Veterinary College), and myself insisting on the pressing necessity of pasteurisation of milk in the interests of the health of the people.

" In your issue of April 25th there appeared a letter from Sir Francis Acland and seven other Members of Parliament, and on April 28th a letter from Lord Iveagh, expressing the contrary view. The grounds of their opposition were broadly: That pasteurisation impaired the nutritive qualities of milk; that the tuberculosis admittedly conveyed to man by raw milk could be abolished by the eradication of tubercle-infected cows; that diseases other than tuberculosis conveyed by raw milk were unimportant because rare in occurrence; that there was a lack of agreement within the medical profession as to the necessity for pasteurisation.

" In answer, it must be understood that the excellent project for the eradication of tubercle-infected cows will take many years, and meanwhile ' Rome is burning '; that the diseases other than tuberculosis conveyed by raw milk are serious and not infrequent, *e.g.*, septic sore throat, scarlet fever, undulant fever; that within the medical profession there is for pasteurisation a consensus of opinion the strength of which is perhaps unfamiliar to those occupied in the world of politics.

" The Fellowship of the Royal College of Physicians embraces all branches of medicine—not only clinical medicine, but also pathology, bacteriology, and public health. At the Comitia held on April 26th the following report was passed without dissentient voice:

" ' The Royal College of Physicians is satisfied: (1) that a daily ration of milk is important for the growth and health of children; (2) that the risk of tuberculosis and other diseases following the consumption of raw milk is considerable; (3) that such risk can be obviated by the use of milk submitted to low-temperature pasteurisation, as defined in the official Order; (4) that such pasteurisation does not materially interfere with the nutritive value of the milk . . . and . . . the College, while realising the importance that milk should be produced from cows free from infection and under conditions of cleanliness, recommends: (*a*) that local sanitary authorities should be given power to require that milk sold within their areas should be pasteurised under official control; (*b*) that steps should be taken to permit of the pasteurisation and sale, as such, of milk from tuberculin-

tested herds; (*c*) that in areas where adequate pasteurisation is at the moment impracticable, milk should be boiled before use.'

"Your obedient servant,
"Dawson of Penn."

In America the veterinary and medical professions are unanimous in their advocacy of pasteurisation, and the largest organisations of milk producers follow their advice. I quote from a few letters I have received on the subject:

Dairymen's League, New York (50,000 milk producers): "There is only one way to ensure the safety of a milk supply, that is by pasteurisation."

Twin City Milk Producers Association, Minneappolis (8,000 producers): "Our association believes that the only practical way of safe-guarding the health of a large city is to have all the milk pasteurised."

Pure Milk Association, Chicago: "In our opinion pasteurisation is a necessary safeguard of public health."

Inter-State Milk Producers Co-operative: "We feel that the large *per capita* consumption in Philadelphia is due largely to high quality of product available. Ninety-nine per cent. of all milk sold is pasteurised."

Milk being the finest food for human beings is also a fine medium for harmful organisms to grow in. These can be destroyed effectually by proper pasteurisation, 145° for thirty minutes as advocated by the Ministry of Health. When this becomes universal liquid milk consumption will increase by leaps and bounds, and producers will become more prosperous as surplus milk at uneconomical prices for manufacturing will become less.

Eradication of Disease.—Having made the present milk supply safe, let us get on with the eradication of milk-borne diseases, such as tuberculosis, *Br. abortus*, hæmolytic streptococcus, mastitis, etc. Many counties have made a good start in this direction by appointing full-time veterinary officers.

Young Farmers' Clubs.—Every rural veterinarian should take a keen interest in the Young Farmers' Club movement. It is difficult to teach an old dog new tricks. Farmers are conservative folk, but given the friendship of the young farmer of twelve to twenty years of age you will find them enthusiastic and ambitious, ready to adopt new ideas if proved to be practical, and you will be building up a *clientèle* that will remain your friends for life. Give freely to them the benefits of your training and experience and you will find that association with them keeps you young. Do not talk to farmers about public health, bacteriology, etc. Say, do it this way, and it will put more money in your pocket, and they will immediately show interest.

A Final Word.—Milk is the finest food in the world. We need more of it, but it must be clean, pure and safe. For the benefit of our great nation let the medical and veterinary professions, sanitarians, producers and distributors accept this great responsibility, each one accepting his share—all co-operating to attain the desired object of an adequate healthy, safe milk supply that will increase the health and prosperity of the nation as a whole.

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CIVIL VETERINARY ORGANISATION WITH REGARD TO PUBLIC UTILITY IN GERMANY.

By A. E. THALAU, M.R.C.V.S., Dr. Med. Vet. (Berlin.).

THE Veterinary Department is attached to the Ministry of Agriculture, and is directed by the highest veterinary official, who is directly responsible to the Minister.

The whole country is divided into Government districts (Regierungsbezirke), of which there are, for instance, three in East Prussia. The largest town in such a district is the seat of the local government, with a veterinary department directed by a local government Veterinary Councillor (Regierungs-und Veterinarrat) whose duties consists of the superintending of all veterinary affairs, such as :

(1) *Veterinary Police.*—Control of notifiable diseases, and to which also belong the regulations for protection against the permanent danger of infectious (notifiable) diseases, especially with regard to dairies, cleansing, and disinfection, in the transporting of animals, arrangement and management of public and private abattoirs, etc.

(2) *Meat Inspection and Control of Food of Animal Origin.*—A local government veterinary-councillor has to be recruited out of the veterinary-councillors who administer the veterinary affairs of the " circuits " (kreise) or smaller districts, which may be compared with the lesser English counties. All these officials must be qualified as " State Veterinary Surgeons " by a special severe, extensive, written and oral examination at the Veterinary College and Ministry of Agriculture in Berlin. The examination is in all veterinary subjects, and can be taken after having been qualified as a veterinary surgeon for at least three years, having been in practice for one year, and after having taken a three months' course at Berlin or Hannover.

The Veterinary Councillor of a circuit (the writer was such in East Prussia until 1933) has the administration of the circuit in veterinary affairs, as has been mentioned before, as regards the duties of the local government Veterinary Councillor, but under the supervision of the latter. One of his most important duties in an absolutely veterinary administration is the supervision of meat inspection, and especially in cases of emergency slaughtering.

Every town in Germany, even the smallest, has a public slaughterhouse, which is under the direction of a veterinary surgeon whose main duty is " Schlachtvieh " (ante-mortem) and " Fleischbeschau " (post-mortem) examination. These veterinary surgeons are appointed by the Town Council, and have to be approved by the circuit veterinary councillor and confirmed by the local government veterinary councillor.

The Veterinary Director of the larger slaughterhouses must hold the official

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qualification as a State veterinary surgeon (corresponding to the British D.V.S.M.), and in cases of notifiable diseases he has to report to the veterinary councillor. The smaller slaughterhouses are under supervision of the veterinary councillor for the corresponding circuit, as also are the private slaughterhouses, and in all villages meat inspection is performed by the local veterinary practitioner.

Owing to the fact that a large surplus of food is not available in Germany, it is necessary that as much as possible of the meat of slaughtered animals be used for human consumption, providing it is fit. Thus, in cases of emergency slaughter, bacteriological meat inspection is compulsory in order to determine the fitness or otherwise of the meat.

This bacteriological meat inspection takes place at the laboratories of the larger abattoirs or in the Bacteriological Institutes, *of which every province has at least one. The Director of such an Institute is always a veterinary surgeon with State veterinary surgeon's qualifications. His assistants are also veterinary surgeons.* These Institutes also carry out the examination of sputum samples for tuberculosis under the Ostertag Eradication Scheme, agglutination tests, post-mortems, make autogenous vaccines, stock vaccines, etc., examine milk samples, fæces, etc. They are of great value to the farmers who own them, and are also Government supported. The veterinary departments of these institutes are supervised by the veterinary councillor to the local government. Apart from these bacteriological institutes of the Chamber of Agriculture, there exist in the local government towns a State Veterinary Research Office for confirmation of anthrax cases, examination of blood samples, bacteriological meat inspection and cases of food poisoning. The director is also a State veterinary surgeon.

The meat of animals slaughtered in emergency is almost without exception sold under the "Freibank" system, under police supervision, for a very low price.

All meat fit for human consumption has to be stamped before it is allowed to be offered for sale in shops or public markets, etc. Every veterinary surgeon who performs meat inspection has his own stamp bearing his initials, so that the inspector can always be traced when necessary. Great value is especially set upon destroying unsuitable meat affected with disease, and also in preventing dogs and cats obtaining access thereto.

No animal, such as a dog or cat, is allowed to be taken into a food shop; the meat must not be touched by the customer before sale, and must be protected against dirt and dust contamination. No vegetables are allowed to be sold in meat shops.

In the larger towns there is a special police veterinary councillor whose duty it is to supervise the public food markets for the sale of eggs, poultry, fish, game, etc., tinned food, milk and meat. He also controls the hygiene of meat shops, etc. The superintending is here done by the local government veterinary councillor.

The duties of veterinary surgeons in Germany are thus very extensive and responsible. In cases of food poisoning, which are very rare, the veterinary

authorities and public health medical authorities work together, but the work of the veterinary and the medical officers is always quite independent. There is no control of one by the other. Meat inspection and the control of food of animal origin is entirely in the hands of the veterinary profession. *In the German veterinary colleges meat inspection, food control and milk are separate subjects with a special professor for the teaching of each.* They are not grouped under " medicine " as in England.

Meat inspection is applied veterinary pathology, and therefore it is logical that veterinary surgeons only can be entitled to perform that duty. Since about thirty-five years ago a school certificate of matriculation standard is necessary for entrance to a veterinary college, as for all the universities. Since the war the German veterinary colleges have been attached to the universities in the university towns, and it may happen that the principal of the veterinary college, who is a veterinary surgeon, may also be the principal of the university itself at the same time. For example, the degrees Dr.Med.Vet., and D.Med., are completely equivalent. *Science is science, and it is not logical and is a retrograde step to keep veterinary science inferior to and dependent upon other sciences,* as that has been tried in Germany a long time ago, but with no success. To every one his due: that in the end is best for public utility.

VETERINARY SERVICE IN THE SOVIET REPUBLIC.

THE chief of the general veterinary administration of the People's Commissariat of Agriculture in the U.S.S.R. described the organisation and nature of veterinary service in that country (*Revue Générale de Médecine Vétérinaire*, 1935, 524, 449–463) in an interesting and impressive manner.

The work is apparently well organised on the principle of a united state veterinary service which is directed by a Commissariat of Agriculture. At present it is said that there is practical and successful control of epizootic diseases and little or no veterinary quackery. Moreover, free veterinary service is given to the whole population. In the Soviet Union there are almost 2,000 newly constructed and equipped veterinary hospitals. In addition, there are other buildings that have been adapted as hospitals or for consultation work, as well as establishments and auxiliary bases on certain farms for rendering veterinary service. There are, for example, 116 inspection and quarantine stations along the eastern frontiers. There are eight stations on the western frontiers. There are 625 veterinary and sanitary stations on railways and waterways ; 92 laboratories for the examination of hides for anthrax (Ascoli method) are in existence and there are 412 centres for meat and milk control. Research is apparently well financed. There are laboratories for the study of bovine diseases, for general microbiology, protozoology, pathological anatomy, animal management and genetics, endocrinology, and pharmacology. Diseases of swine, birds, fur-bearing animals and dogs also receive attention. The personnel for conducting this experimental work in

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veterinary medicine in 1934 numbered 355, of which 144 were research workers and 40 were pupils.

Biological products are turned out from centres that are designated biological factories, of which there are twenty-two. These establishments employ more than 5,000 persons, and the outlay for these so-called factories, according to the 1935 budget, was sixty million roubles, thirty-three million of which had been expended in August, 1935. Twenty-seven different preparations are turned out by these laboratories. The number of veterinarians has increased 100 per cent. and that of veterinary assistants has increased 780 per cent. over that which existed during the Tsarist régime. Before the revolution there were four veterinary colleges and five training units for *feldschers*, whereas at present there are 23 colleges with 12,500 students, 1,500 being graduated annually and 83 training units which qualify 2,400 *feldschers* annually. Women are admitted on an equal basis with men in U.S.S.R., and now 30 per cent. of the veterinary students are women.

Veterinary topics are commonly discussed on the radio, and books and brochures are being freely distributed in order to familiarise those who handle animals with the practical phases of disease control. Cattle plague, contagious bovine pleuropneumonia and glanders in horses have been practically stamped out.

(From the *North American Veterinarian.*)

Reviews

History in a New Form. *Medical Classics*: English agents, Baillière, Tindall & Cox, 7 and 8, Henrietta Street, London, W.C.2.

Medical Classics is a new journal of a most original kind. It publishes the original papers read by the outstanding members of the medical profession, together with the original illustrations, portraits of the authors and facsimile reproductions of portions of the papers themselves. The January issue is devoted in its entirety to Theobald Smith, who was so largely instrumental in determining the cause of swine plague and hog cholera and was one of the original directors at the founding of the Rockefeller Institute of Medical Research, and was later President of the Board of Directors. The whole issue deals with two subjects: "Investigations into the Nature, Causation and Prevention of Southern Cattle Fever," and "A Comparative Study of Bovine Tubercle Bacilli and of Human Bacilli from Sputum," and most interesting reading it makes. In addition a complete bibliography of Smith's writings is provided, together with a brief biography of the man himself. The plans of the publishers of this journal, which is edited by Emerson Crosby Kelly, M.D., F.A.C.S., include issues which will deal with Lister, on Antisepsis; Addison, on Addison's Disease; Jenner, on Vaccination; and Colles, on Colles's Fracture; to mention some on the English side; while on the American we find Oliver Wendell Holmes, Morton, Halsted and Murphy. The Continent includes Billroth, Banti, Koch and Bassani. It would be difficult to imagine a more pleasant way of studying medical history, or a more instructive one, for indeed some of the problems about which the great men of the past wrote are with us still; for instance, Paget's disease, and it is most interesting to read

the original paper Paget wrote on this subject. We can thoroughly recommend this publication, not only for its inherent interest, but for the manner in which the dry bones of the past are brought to life and reclothed with flesh, to the instruction and edification of all who read the monthly issues.

Obituary

PROFESSOR JOHN ANDERSON GILRUTH, M.R.C.V.S., D.V.Sc. Melb., F.R.S.E.

By the death of Professor Gilruth, which occurred a few days ago, in his sixty-seventh year, at Melbourne, in Australia, the veterinary profession has lost one of its most untiring workers and brilliant scientists, a scientist, too, who always found some beneficial and practical application of his theories for the good, not only of animals, but also of man.

Born at Auchmithie, Arbroath, the son of a farmer, he commenced his student's career in the profession of law, but eventually changed his profession and became a veterinary surgeon, studying in the first place at the Glasgow College, where he won almost every possible medal and taking his Diploma from the Royal Veterinary College in London in 1891. In 1892 he went to New Zealand as a Veterinary Inspector to the Government, and it was entirely owing to his energy and advice that the present great and efficient Veterinary State Service was established in that country. The Veterinary Meat Inspection method, as used in New Zealand, is a pattern to the rest of the world, and the appetising appearance of the " Canterbury lamb," so much of which is to be seen in our English shops, had as its origin the foundation laid by Dr. Gilruth.

Besides being Chief Veterinarian, he was a Member of the New Zealand Royal Commission on Public Health and Pathologist to the New Zealand Health Department. In 1909 he resigned his position in New Zealand in order to take over the Principalship of the new Veterinary School which was being built and was attached to the University of Melbourne in Australia. Here he did much good scientific work, and in 1912, after his return from an exploring expedition in conjunction with a party of scientists into the unknown central wilds of Australia, he was appointed by the Commonwealth as Government Administrator of the Northern Territory, a most difficult post to fill. At the end of his period of office he returned to Melbourne and was appointed Chief of the Division of Animal Health of the Commonwealth Council for Scientific and Industrial Research. Professor Gilruth was the first scientist to discover the presence of cancer in the fish, the subject being a New Zealand trout.

MAJOR LESLIE LYNE DIXSON, late R.A.V.C.

It is not often given to a Veterinary Surgeon to make history, to make money and to be a pioneer all at the same time, as did Major Leslie Dixson of the Royal Army Veterinary Corps.

His genial and even-tempered disposition, together with his tall gaunt figure, will be remembered by those who had the pleasure of his friendship in student days at the Royal Veterinary College, from which he qualified in 1904. The son of an

equally genial and generous father, also in the profession, whose practice at Margate was for many years the most fashionable in the South of England, Leslie Dixson lived in an atmosphere of sport from boyhood days. After qualifying, he entered the R.A.V.C., serving in the Great War, and retiring shortly after its termination with the rank of Major to rejoin his father in the home practice.

He was always fond of a greyhound, and any officers' mess to which he was attached in France was sure of an occasional coursing match with something at the end for the pot; for the surrounding country (as it often did in Northern France) gave every evidence of the presence of the hare. After his return to his father's practice he was able to follow this sport of greyhound coursing to his heart's content, and he took a high place amongst the officials at many of the best races, including the Waterloo Cup. He is best known, however, to the British public as the man who introduced greyhound racing into this country, and he thus made a lasting name by pioneering a new sport which has not only given pleasure (and profit) to hundreds of thousands of working men, but also has created lucrative official positions for many members of his own profession, as each greyhound track must of necessity have veterinary officials.

The history of the commencement of this sport was interesting. It commenced in 1925 with the arrival of Mr. C. Munn, an American sportsman, to London, from Miami, Florida, where greyhound racing had been carried on successfully for some years; and Mr. Munn's idea was that perhaps the British sportsman would also like to do something in this line. He was advised that Major Dixson was the best man to see, and after their first discussion, which took place over a luncheon, they separated with the arrangement that Mr. Munn should try to get together a reasonable amount of capital and Major Dixson should endeavour to persuade some of his friends to supply dogs. They agreed to meet in three weeks, and each arrived looking very glum, as neither had succeeded in his object; in fact the mildest expression which had been used to them by their friends was that the scheme was " only fit for Colney Hatch." Determined, however, not to be beaten, they decided to have another try, and this time between them they managed to raise the sum of £3,000, with a promise of about sixty dogs, and the wheel of fortune prompted them to make their debut in the city which is so well known for the sporting instincts of its working man—Manchester. It literally caught on at once, and it speedily became evident that they had " struck oil." They then enlisted the sympathy and support of a number of others, and from this small beginning there was built up the prosperous and well-kn wn organisation which is now known as the National Greyhound Racing Association under whose control and guidance greyhound racing has become the extremely popular sport it is to-day.

News

CATTLE COMMITTEE—QUALIFICATION FOR SUBSIDY OF IMPORTED CATTLE.

THE Cattle Industry (Emergency Provisions) Acts provide that imported cattle are not eligible for subsidy until they have been in the United Kingdom for a period of at least three months. Each imported animal has a tattoo mark placed in the left ear at the time of importation, and this tattoo mark, which is changed twice a month, provides evidence of the approximate date of importation.

Previous to December 31st, 1936, the tattoo mark took the form of a broad

arrow, a letter and a number, but as from January 1st, 1937, the mark will be in the form of a broad arrow and a number only. The following table gives the dates on which animals imported into the United Kingdom on and from October 1st, 1936, will become eligible for presentation for certification as regards the length of time they have been in the United Kingdom :

Tattoo Marking.			May be certified on or after:
U3	broad	arrow	January 15th, 1937
V3	,,	,, ...	February 1st, 1937
W3	,,	,, ...	February 15th, 1937
X3	,,	,, ...	March 1st, 1937
Y3	,,	,, ...	March 15th, 1937
Z3	,,	,, ...	March 31st, 1937
01	,,	,, ...	April 15th, 1937
02	,,	,, ...	April 30th, 1937
03	,,	,, ...	May 15th, 1937
04	,,	,, ...	May 31st, 1937
05	,,	,, ...	June 15th, 1937
06	,,	,, ...	June 30th, 1937
07	,,	,, ...	July 15th, 1937
08	,,	,, ...	July 31st, 1937
09	,,	,,	
10	,,	,,	
11	,,	,, ...	Cannot be certified under Cattle Industry (Emergency Provisions) Acts now in force.
12	,,	,,	
13	,,	,,	
14	,,	,,	

All animals bearing a tattoo mark in the form of a broad arrow, a letter and a number, in which the number is 1 or 2, were imported before the end of 1935 ; and animals bearing the number 3, in conjunction with any letter from A to T, were imported before the end of September, 1936, and may now be certified for subsidy, if they are eligible animals in all other respects. The tattoo markings, which are changed at the beginning and middle of each month, are the only evidence which can be accepted by certifying authorities as regards the length of time imported cattle have been in the United Kingdom, and producers are advised to examine the tattoo marks of their imported cattle before taking them to the centre for certification. In any case of doubt the certifying officer at any certification centre should be asked for advice.

EXPORT OF LIVESTOCK TO CANADA.

THE Ministry of Agriculture and Fisheries has been notified by the Government of the Dominion of Canada of the amendment of the Canadian livestock importation regulations by Order in Council (No. P.C. 3280), dated December 29th, 1936, whereby veterinary certificates as to the health of all equines, cattle, other ruminants and

swine exported from Great Britain to Canada are now required, in addition to the other certificates already specified in the regulations. The Order in Council prescribes that such health certificates must be issued by "official veterinarians of the national government of the country of origin." Exporters, shipping agents and shipping companies should therefore note that in order to comply with the new requirement in regard to certificates of health, it will be necessary for such certificates to be obtained from local veterinary surgeons who are veterinary inspectors of the Ministry. Application should accordingly be made to the Ministry for the name of its local veterinary inspector(s) in the district(s) of origin of the animals intended for export. Certificates as to the freedom from disease of the districts of origin will continue to be issued as hitherto, direct by the Ministry on application, and the arrangements in force with regard to tuberculin and contagious abortion tests in the case of cattle will also continue.

Personal

As announced in the *London Gazette* for March 1st, 1937, the following were appointed Honorary Veterinary Surgeons to His Majesty the King: Major Sir Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E.; John Willett, Esq., M.R.C.V.S. Each of these gentlemen has now served in this capacity in three reigns.

Publishers' Notices

All communications should be addressed to 7 & 8, Henrietta Street, Covent Garden, London, W.C. 2. Telephone: Temple Bar 8568. Telegrams: "Baillière Phone, London."

Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editor.

Copy of advertisements should be in the hands of the publishers—Baillière, Tindall and Cox—not later than the 25th of the month, or if proof is required, not later than the 23rd.

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